Workforce Development Planning: A People Strategy for Organizations

Michael Green, Training Sales Manager
Tamara Adamson, Training Consultant
Agenda

- Change
- Workforce Development Plan
- Breakout Session
- Case Study Discussions
- Next Steps
Goals for this session

When you leave this session you will be able to:

• Justify the effort to create a Workforce Development Plan as well as the eventual Training
• Use the three step process of a Workforce Development Plan to support change
• Drive results through effective training
Organizational Change and Individual Change

Awareness
- Of the need for change
- Of the nature of the change

Desire
- To support the change
- To participate and engage

Knowledge
- On how to change
- On how to implement new skills and behaviors

Reinforcement
- To sustain the change
- To build a culture and competence around change

Ability
- To implement the change
- To demonstrate performance

Leadership/Sponsorship
- Projects meet objectives
- Projects finish on time and on budget
- Return on investment (ROI) realized

Project Management
- Change Management
Training spending and project success

Source: IDC, Training's Impact on Projects Survey
Our Platform and its Capabilities are Advancing

- Smart Mapping
- Big Data
- GeoAnalytics
- Machine Learning
- Ortho Mapping
- Spatiotemporal
- Utility Networks
- Massive Point Clouds
- Spatial Statistics
- Real-Time
- Volumetric Data
- 3D Cities
- Distributed GIS
- Web Raster Analysis
- Augmented Reality
- Imagery

...Focused on Quality, User Needs and Innovation
What is a workforce development plan?

A strategy-driven learning plan that aligns training resources to your organization’s vision and goals to ensure the roles in your workforce have the skills to execute on leveraging the ArcGIS Platform.
Workforce development planning is a process

Three levels of workforce development planning

- Individual
- Project & Department
- Enterprise
Workforce Development Planning

Alignment

- Organizational objectives
- Geo-discovery
- Workforce roles

Action

- Skills requirements
- Timelines, priorities and budgets
- Delivery methods (training plan)

Analysis

- Implement
- Strategy
- Modify as needed
Workforce Development Process

- Mission and Goals
- Applications of GIS
- Roles Discovery
Essential Patterns of a Location Strategy

Location Enablement
Empower all users to discover, use, make and share maps

Constituent Engagement
Get feedback and communicate with external constituents

Decision Support
Support organization decision making activities

Field Mobility
Get information into and out of the field

Analytics
Describe, predict, and improve business performance

Location Data Management
Collect, organize and exchange data about all assets and resources
Workforce Development Process

- Analysis
- Training Resources
- Identify Delivery Method
- Budget Planning
Workforce Development Process

Action

Execute Plan

Review Plan
Analysis: Connecting Patterns to Strategic Goals

3.0 Geospatial Goals and Objectives

To ensure alignment with goals identified in Iowa DOT’s Geospatial Policy, geospatial specific objectives have been defined and linked to each policy goal. The geospatial objectives are mapped to GIS patterns (introduced on the previous page) that will support their execution and achievement.

Performance Management: Using information every day to improve timeliness and accuracy to provide our customers.

Geospatial Roles Identified

Training Recommendations by Role

4.0 Roles, Competencies and Training

The work of geospatial users will play an important role in Iowa DOT’s evolution. Tools and applications that tackle new kinds of problems are being developed daily. The goal of this document is to enable and empower map users to fully leverage resources so they can maximize their effectiveness by staying current with the technology.

Iowa DOT has a diverse need for GIS technologies to support its strategic plan. As mapping, or location enablement solutions, continue to expand throughout the department, it will make it easier for everyone in the organization to discover, use, make and share maps. This requires a strong base understanding of geospatial solutions, awareness of available resources, and knowledge of training capabilities to ensure worker productivity and promote continued employee skill development.

A Geospatial Core Role

Iowa DOT Geospatial Core Roles

Users

- Map Consumer - Field
- Map Consumer - Office
- Map Manager

Administrators

- Geospatial Web Developer
- Geospatial Data Manager
- Geospatial Server Administrator

Managers

- Geospatial Project Manager
- Geospatial Project Manager
- Geospatial Project Manager

Map Consumer - Office

Staff: Rail, Transit, Aviation, Grants, Bridge, etc.

Description: Office users consume and create content to exchange information with others in the department. Often this work is published with others via various solutions such as story maps, web apps and dashboards. Office users also need to map information from excel and various databases. These individuals may or may not have any prior geospatial education or workplace experience with geospatial tools.

Technical Competency: Basic knowledge of geospatial solutions for creating and publishing information, including web mapping and select mobile solutions.

Technology & Training Overview

Technology: ArcGIS Online account

Training: Geospatial Infrastructure 101 (test policies, procedures, philosophy, imagery and data available), ArcGIS Online training for publishers, portal training, Esri for Office, Story Maps, Esri Web Apps

Non-Exi Training

- Iowa DOT Geospatial Infrastructure 101 (REST, Policies, philosophy)
- GeoCortex 101

Exi Instructor-Led Training

- ArcGIS 1: Introduction to GIS
- ArcGIS Online Subscriptions for Organizations: Publisher Workflows
- Designing Maps with ArcGIS - OPTIONAL

Exi E-Learning Training

- Getting Started with GIS
- Finding Geographic Data in ArcGIS
- Maps and More: Discover the Living Atlas of the World
- Telling Your Story with Esri Story Maps
- Creating Dynamic Maps Using Esri Maps for Office
## Training Plan

Priority of training will be based upon GIS Title, IT Title, full-time GIS user, project requirement, pre-reqs, available software/extensions, and previous coursework.

<table>
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Action - Delivery

Instructor-led E-Learning MOOCs Certifications
Benefits:
- Interactive
- Peer-to-peer learning
- Hands on exercises

Delivery:
- In a Esri Training Facility (14 in the U.S.)
- Online (virtual classroom)
- Your facility (on your infrastructure or mobile lab)
Action - Delivery

Training | Coaching/Custom

Coaching
- Best practices
- Agency tasks & specific workflows
- Student application using a copy of client data

Full Custom Class
- Unique and specific to organizational needs
- Can include pieces from existing courses
- Change in delivery method (remove exercises)
Let’s look at a more detailed example

Seattle Parks and Recreation
Identity Organizational Goals

Process to plan
The three-step workforce development process results in a workforce development plan

1.0 Executive Summary

Seattle Parks and Recreation (Parks) manages a 4,200-acre park system of 465 parks and extensive natural areas. Parks provides athletic fields, tennis courts, play areas, specialty gardens, and more than 70 miles of boardwalks and 120 miles of trails. The system comprises about 11% of the City’s land area. Parks also manages many facilities, including 30 community centers, eight indoor swimming pools, two outdoor (summer) swimming pools, four environmental education centers, two small craft centers, four golf courses, an outdoor stadium, and much.

• Goal 1: Steward Seattle’s parks for long-term sustainability
• Goal 2: Provide recreation and learning opportunities
• Goal 3: Actively engage and build relationships with Seattle’s diverse population
• Goal 4: Maintain Park’s land and facilities
• Goal 5: Provide employee development opportunities and a healthy work culture
• Goal 6: Strengthen systems that help us do our work
Align GIS Patterns to organization’s strategic goal

**Location Enablement**
Empower all users to discover, use, make and share maps

**Location Data Management**
Collect, organize and exchange data about all assets and resources

**Analytics**
Describe, predict, and improve business performance

**Field Mobility**
Get information into and out of the field

**Decision Support**
Support organization decision making activities

**Constituent Engagement**
Get feedback and make informed decisions
Develop GIS Goals

### Organization Goal

Steward Seattle’s parks for long-term sustainability

<table>
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<tr>
<th>GIS Pattern</th>
<th>GIS Goal</th>
<th>GIS Capability</th>
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<tr>
<td>Constituent engagement</td>
<td>Support Park Legacy Plan with maps for status reports and web maps for interactive web reporting</td>
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<tr>
<td>Decision Support</td>
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<td>Location Data Management</td>
<td>Support Park Planning using GIS to identify neighborhoods that are under served by useable park open space using a Gap Analysis model</td>
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<td>Analytics Decision Support</td>
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Align GIS Capabilities to GIS goals

- Foundation
- Collaboration and Sharing
- Data Collection and Management
- Developer
- Imagery and Remote Sensing

- Mapping and Visualization
- Real-Time GIS
- Spatial Analytics
- 3D GIS
- Certification
Process to plan

Organization Goal: Steward Seattle’s parks for long-term sustainability

GIS Goal:
- Support Park Legacy Plan with maps for status reports and web maps for interactive reporting
- Support Park Planning using GIS to identify neighborhoods that are under served by usable park open space using a Gap Analysis model

GIS Pattern:
- Spatial Analytics
- Real-Time GIS
- Collaboration & Sharing
- GIS Capabilities

GIS Capability:
- Decision Support
- Constituent Engagement

Field Mobility:
- Location Data Management
- Analytics
- Decision Support

Constituent Engagement:
- Location Data Management
- Analytics
- Decision Support

Decision Support:
- Location Data Management
- Analytics
- Decision Support

Analytics:
- Describe, predict, and improve business performance

Location Data Management:
- Collect, organize and exchange data about all assets and resources

Enablement:
- Empower all users to discover, use, make and share maps

Support:
- Get feedback and make informed decisions

Mobility:
- Get information into and out of the field

Decision making:
- Support organization activities
Activity: Identify Capabilities aligned to Goals

- Review the Organizational Goals, Patterns of Use, and the GIS Goals

- Identify the Capabilities that could be applied to these goals

- Optional:
  - Work through a goal you have at your organization
Align GIS Capabilities to GIS goals

- Foundation
- Collaboration and Sharing
- Data Collection and Management
- Developer
- Imagery and Remote Sensing

- Mapping and Visualization
- Real-Time GIS
- Spatial Analytics
- 3D GIS
- Certification
What are your group results from the exercise?
The three-step workforce development process results in a workforce development plan.

**Identify Roles**

**Seattle Parks and Recreation Job Roles**

- GIS Manager
- Web and Desktop Application Programmer
- System Administrator
- GIS Analyst
- Data Entry / Field Crew
- User / Public User

**Alignment**

**Action**

**Analysis**
Align GIS Capabilities to organization’s strategic goal

- **Foundation**
  - Learn GIS Concepts
  - ArcGIS Platform Concepts
  - Implement Your GIS

- **Developer**
  - Learn the Basics
  - Collect Data in the Field
  - Manage Data Quality
  - Manage Enterprise Geodatabases
  - Manage GIS Project Workflows
  - Convert and Combine Data
  - Manage Metadata
  - Create and Edit Data
  - Maintain Data Integrity

- **_data collection and management**
  - Build Mobile Apps
  - Build Web Apps
  - Build Desktop Apps
  - Script and Automate

- **Mapping and Visualization**

- **3D GIS**

- **Spatial Analytics**

- **Imagery and Remote Sensing**

- **Real-Time GIS**

- **Collaboration and Sharing**
System Administrator

This role's responsibilities include:

- Configures and maintains the GIS infrastructure to conform to set IT policies
- Maintains enterprise spatial databases with governance to include data modeling, geodetic control parameters, and metadata documentation
- System performance tuning/troubleshooting
- Related server software (upgrades and service packs)
- Deploys GIS web functionality with appropriate security and server considerations

*System Administrator is not a formal position within Parks. The workflows assigned to this role are performed by a combination of Parks IT, the GIS Manager and SPU*

<table>
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<tr>
<th>GIS Pattern</th>
<th>Workflows and Technical Competencies</th>
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| Location Data Management | Data Management Workflows  
  - Managing Data Quality  
  - Feature Editing for Desktop  
  - Automating Editing Tasks  
  - Feature Editing for Server / Mobile  
Data Editing Workflows  
  - Managing Feature Data  
  - Managing Raster Data  
  - Designing / Managing Geodatabases  
  - Managing Multiuser Geodatabase Environment  
  - Data Documentation |

Esri Instructor-Led Training

1. ArcGIS for Server: Site Configuration and Administration (3 Days)
2. System Architecture Design Strategies (3 Days)
3. Building Geodatabases (3 Days)
4. Configuring and Managing the Multiuser Geodatabase (3 Days)
5. Implementing Versioned Workflows in a Multiuser Geodatabase (3 Days)

Esri e-Learning Training

1. Archiving Data in a Multiuser Geodatabase (Web Course, 2 Hours, Free)
2. Data QC with ArcGIS: Automating Validation (Web Course, 3Hours, Free)
3. Transforming Data Using Extract, Transform, and Load Processes (Web Course, 3 Hours, Fee)
4. Using ArcGIS Data Reviewer to Assess Data Quality (Training Seminar, 1 Hour, Fee)
5. Creating and Sharing GIS Content Using ArcGIS Online (Web Course, 3 Hours, Free)

Applicable Certifications

- Enterprise Administration Associate
- Enterprise System Design Associate
Process to plan
The three-step workforce development process results in a workforce development plan

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Priority of training will be based upon GIS Title, IT Title, full-time GIS user, project requirement, pre-reqs, available software/extensions, and previous coursework.

### Recommended Course

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### Optional Course

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### Completed Course

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<th>Agency</th>
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<tr>
<td>OIR</td>
<td>GIS Director</td>
<td>Anderson, Peggy</td>
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<td>OIR</td>
<td>GIS Analyst 3</td>
<td>Meeks, Chris</td>
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<td>White, Suzanne</td>
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<td>OIR</td>
<td>Info Systems Tech Cons</td>
<td>Griswold, Andrew</td>
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<td>GIS Tech 2</td>
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<td>Gillam, Patrick</td>
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<td>McCall, Michael</td>
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<td>Safety</td>
<td>GIS Analyst 2</td>
<td>Tucker, Ray</td>
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</table>
Benefits of a Workforce Development Plan

- Customized Training Plans
- Training aligned with goals and objectives

- Defined GIS roles and responsibilities

- Deploy training resources effectively

- Easy access to training materials and information

- Goals identification

- Business case for GIS investment
Seneca Resources Video
Case Study: Virginia Department of Transportation
Case Study: Virginia Department of Transportation

Mission: *Our mission is to plan, deliver, operate and maintain a transportation system that is safe, enables easy movement of people and goods, enhances the economy and improves our quality of life.*

- **Plan**
- **Deliver**
- **Operate**
- **Maintain**
- **Support**

<table>
<thead>
<tr>
<th>2015 VDOT Goals</th>
<th>EGIS Goals Directly Contributing to Organizational Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plan</strong>&lt;br&gt;Planning includes monitoring existing conditions and forecasting future growth; engagement with stakeholders through MPOs, Planning District Commissions, and local governments; identification of needs; short and long range planning; prioritization, programming, and funding of programs (Transportation Improvement Program, Statewide Transportation Improvement Program and Six-Year Improvement Program [SYIP]).</td>
<td>Mapping on Demand Application Development Tracking Workforce Development Open Data Exchange Data Management Building the VDOT EGIS</td>
</tr>
<tr>
<td><strong>Deliver</strong>&lt;br&gt;Delivery includes preliminary engineering (project scoping, evaluation of environmental impacts, obtaining comments, developing plans, specifications and estimates), right of way acquisition, and construction project activities (mobilization, maintenance of traffic, construction, and inspection).</td>
<td>Mapping on Demand Asset Management Application Development Tracking Workforce Development Open Data Exchange Data Management Building the VDOT EGIS</td>
</tr>
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</table>
2.0 Organizational Overview

Mission: Our mission is to plan, deliver, operate and maintain a transportation system that is safe, allows easy movement of people and goods, enhances the economy and improves our quality of life.

Values in Public Service:

- Be responsive to customer needs, consider what VDOT does in terms of how it benefits our customers, and treat customers with respect, courtesy, and fairness.
- Commit to safety and continuous improvement in everything we do, learning from mistakes and successes alike.
- Trust, respect, support, and encourage each other.
- Respect and protect the public investment.
- Make decisions based on facts and sound judgment and accept accountability for our actions.
- Honor our expertise in using information, tools, and technology to achieve high performance and stay on the cutting edge.
- Think ahead, act, and plan creatively for today and tomorrow.

The Virginia Department of Transportation (VDOT) is responsible for building, maintaining, and operating the state’s roads, bridges, and tunnels. The organization employs over 7,000 employees across the state in both the main office and the nine districts.

3.0 Strategic Goals and Alignment

Strategic workforce development planning is part of an overall effort to manage Virginia DOT in an effort to increase organizational efficiency and effectiveness. This strategic plan reviews agency goals and objectives, relates these to short-term development needs, and sets the long-term strategic direction for the agency workforce.

To ensure alignment with State goals, VDOT strategic goals and EGIS strategic goals these relationships are highlighted within this section.
Case Study: State of Tennessee
After years of limited training budgets, many organizations now face the challenge of aligning employee skills with modern technology-driven workflows and customer service expectations.

A big focus of the GIS leadership at the State was ensuring that the training went to the right people in the right classes and really showed the impact and the business benefits of the training.
Case Study

Recommended Courses
- ArcGIS 2: Essential Workflows
- ArcGIS 4: Sharing Content on the Web
- Designing Maps with ArcGIS
- Configuring and Managing the Multi-User Geodatabase
- Working with CAD Data in ArcGIS
- ArcGIS Online Subscriptions for Organizations: Publisher Workflows
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Select the session you attended

Scroll down to find the survey

Complete Answers and Select "Submit"
Questions?