2016 GIS Strategic Plan Update

June 14, 2016
Project Overview

• Plan developed concurrently with the ITS Strategic Plan
• Focused on identifying agency-wide location based data needs for the next ten years (2016-2026)
  • Conducted needs assessment surveys
  • Conducted targeted interviews
• Builds upon GIS efforts undertaken since the previous 2012 GIS Strategic Plan
• Plan implementation will lead to increased customer service, increased staff and operational efficiency, and maximize GIS technology advances within LYNX.
## History

<table>
<thead>
<tr>
<th>Year</th>
<th>Document Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>LYNX ITS Strategic Plan</td>
</tr>
<tr>
<td>2011</td>
<td>LYNX ITS Strategic Plan</td>
</tr>
<tr>
<td>2012</td>
<td>LYNX GIS Strategic Plan</td>
</tr>
<tr>
<td>2014</td>
<td>LYNX ITS Architecture Update</td>
</tr>
<tr>
<td>2016</td>
<td>Draft: 2016 ITS Strategic Plan Update</td>
</tr>
</tbody>
</table>
Relation to Other Plans

2015
• Regional ITS Architecture updated by Florida Department of Transportation – District 5

2016
• Florida Department of Transportation – District 5 is updating their ITS Strategic Plan
• MetroPlan Orlando is updating their ITS Strategic Plan (LYNX is on the Stakeholder committee)
The 2012 GIS Strategic Plan – Highlights

<table>
<thead>
<tr>
<th>Year</th>
<th>Plan</th>
<th>Design</th>
<th>Implement</th>
</tr>
</thead>
</table>
| 2013 | • Internal system integration/updates  
      • RTIS enhancement  
      • GIS data structure enhancement | - RTIS  
- Automated field data collection  
- On-board integration  
- Bus stop inventory  
- Streamline basemap update process | - CAD/AVL  
- Create catalog of location-based systems |
| 2014 | • Multimodal data integration  
      • Intermodal trip planner  
      • LYNX data warehouse enhancements | - GIS data structure enhancement  
- Systemwide location-based data access  
- RTIS enhancement | - RTIS  
- Bus stop inventory  
- Automated field data collection  
- On-board integration  
- Streamline basemap update process |
| 2015 | • Regional data sharing  
      • External interoperability | - Multi-modal data integration  
- Intermodal trip planner  
- LYNX data warehouse enhancements | - RTIS Enhancement  
- GIS data structure enhancement  
- Systemwide location-based data access |
| 2016 | • Flexible services  
      • Automated fare payment and distance-based fares | - Regional data sharing  
- External interoperability  
- DataMart, reporting and analysis tools  
- Automated fare payment and distance-based fares | - Intermodal trip planner  
- LYNX data warehouse enhancements |
| 2017 | • “Connected vehicle” | - Flexible services  
- DataMart, reporting and analysis tools  
- Automated fare payment and distance-based fares | |

August 2012

LYNX GIS Strategic Plan Update
Final Report

LYNX 407-841-LYNX

Central Florida Regional Transportation Authority
Relation to Other Plans

• Vision Statement
• Goals and Objectives
• Potential Funding Sources
  - Federal
  - State
• Prioritized ITS Improvement Program
  - Short-term (0-5 years)
  - Mid-term (6-10 years)
  - Long-term (11-20 years)
2016 GIS Plan - Project Tasks

Task 1
- Identify Current and future ITS/GIS needs and recommendations
- Identify relevance of ITS/GIS needs and recommendations to LYNX GIS Plan

Task 2
- Develop internal stakeholder group
- Develop prep guide, and questionnaire and conduct interviews
- Define data and data sharing needs across LYNX
- Define technology, staffing and training needs

Task 3
- Develop detailed GIS Strategic Plan and Action Program Outline

Task 4
- Determine Regional ITS Architecture Compliance
- Determine compliance with GIS standards and best practices

Task 5
- Develop Draft and Final Strategic Plan
## LYNX Stakeholders

### Stakeholder Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
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<tbody>
<tr>
<td>Antman, Leonard</td>
<td>Finance</td>
</tr>
<tr>
<td>Alkebulan, D’ Hasheem</td>
<td>Planning</td>
</tr>
<tr>
<td>Bartley, Sheena</td>
<td>Procurement</td>
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<td>Battle, Juan</td>
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<td>Bayard, Craig</td>
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<td>Bourova, Mira</td>
<td>GIS</td>
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<td>Colon, Maria</td>
<td>Human Resources</td>
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<td>Friedman, Matthew</td>
<td>Marketing Communications</td>
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<td>Griffin, Tyler</td>
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<td>Hall, Lorna</td>
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<td>Jamison, Doug</td>
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<td>Quinones, Rey</td>
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<td>Robinson, Doug</td>
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<td>Rodriguez, David</td>
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<td>Veley, Terry</td>
<td>Marketing Communications</td>
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### Stakeholder Meetings

<table>
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<th>Meeting</th>
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<tr>
<td>ITS</td>
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<tr>
<td>GIS</td>
<td>February 18, 2016</td>
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<td>GIS</td>
<td>April 19, 2016</td>
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<td>June 14, 2016</td>
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<td>August 24, 2016</td>
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### Department Meetings

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Needs Assessment

Achievements

Enhanced Processes

Priorities
ITS and GIS Technology Applications

Mobile Applications
- Real-Time Information
- Fare Payment
- Transit Signal Priority
- Security Systems
- Maintenance Systems
- Bus Technology/Connected Vehicles
- Electric Vehicles
- Collision Avoidance Systems
- Super Wi-fi
- Transit Communication Interface Protocol (TCIP) Standardization
- Protocols for data sharing
The 2016 ITS and GIS Strategic Plans Evaluated....

- **Technologies currently in use** at LYNX and desired improvements; including current and emerging technology trends
- **Existing data flows** for information exchange to internal and external stakeholders
- **Existing technical and human resources**, and the need for improvements
- Strengths and weaknesses of the **existing technology infrastructure** and requirements for improvements
- Identify key goals and objectives
ITS/GIS Technology Trends

• Crowdsourcing
• Fare Payment/Collection Advancements using Near Field Communications (NFC)
  • Google Play
  • Apple pay
• Enhanced Virtualization and Cloud Computing
• “Big Data” Management, Analytics, and Visualization
• Advanced Tools and Technologies for Web-based content
  • HTML 5
  • JavaScript
  • Esri App Studio, Microsoft Xamarin
Goal 1 and Objectives

- Goal 1: Automate data collection and processing capabilities for location-based data, and identify unique enterprise-wide sources for each type of location-based data to streamline the associated workflow to reduce the capital and recurring costs of collecting, processing, managing, analyzing, sharing and presenting location-based data via the adoption of innovative technologies and techniques.
Goal 2 and Objectives

- **Goal 2: Maximize the utilization of location-based information by internal staff to support their business functions by creating interactive GIS tools that enhance data accessibility via a variety of devices and platforms.**
Goal 3 and Objectives

- **Goal 3:** Enhance the capabilities of the location-based systems to deliver timely, reliable and accurate customer information via a variety of dissemination media at pre-trip and en-route stages of the customer travel-chain.
Goal 4 and Objectives

- **Goal 4**: Enhance the interoperability of existing location-based systems to increase data sharing across regional Central Florida partners and with future systems/subsystems.
Goal 5 and Objectives

- **Goal 5**: Create policies and standards across the organization that allow for consistent and integrated technology platforms with the goal to maximize the LYNX investment in IT software and IT infrastructure.
Goal 6 and Objectives

- **Goal 6**: Identify additional annual LYNX GIS staff training opportunities to enhance staff skillsets.
### 2017 GIS Plan Action Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Plan</th>
<th>Design</th>
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<td>2017</td>
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### 2018-2019 GIS Plan Action Program

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<tr>
<td>2019</td>
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### 2020-2021 GIS Plan Action Program

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</tr>
<tr>
<td>2021</td>
<td>Objectives</td>
<td>Technology review</td>
<td>Solution</td>
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</table>
LYNX is considering the implementation of an ArcGIS portal extension with using the Esri ArcGIS Online Cloud environment. Of particular interest to LYNX is the feasibility of this type of configuration with a web and GIS server in the Cloud outside of the LYNX firewall.

- Implementation timeframes
- High-level functional requirements
- Dependencies
- Potential costs and benefits
## Recommendations Example

### WORKFLOW:

- **Public Library**
- **O&M Costs:**
- **Recommended Support:**
  - [ArcGIS Online](https://www.arcgis.com/)
  - [ArcGIS Portal](https://www.arcgis.com/portal/)
  - [ArcGIS EDN license](https://www.esri.com/software/arcgis/prod-details/prod_1059.html)
  - [GeoEvent Extension](https://www.esri.com/software/arcgis/prod-details/prod_1034.html)
- **Application Server (Cost Environment):**
  - [SQL Server Express](https://www.microsoft.com/en-us/sql-server/sql-server-express)
  - [ESRI GeoEvent Extension setup and configuration](https://www.esri.com/software/arcgis/prod-details/prod_1034.html)
  - [ArcGIS Advanced license (concurrent)](https://www.esri.com/software/arcgis/prod-details/prod_1017.html)

### O&M COSTS:

<table>
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<tr>
<th>Components Needed</th>
<th>Hardware</th>
<th>Unit Cost</th>
<th>O&amp;M Cost</th>
<th>Unit Cost</th>
<th>O&amp;M Cost</th>
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<tr>
<td>ArcGIS Online (level 2 subscription 50 users - 10,000 credits)</td>
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<td>$36,550</td>
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<td>$73,098</td>
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**Assumptions:**

1. Total Estimated Cost assumes that ESRI licensing maintenance pricing structure remains unchanged through 2018. Estimates are based on email response from ESRI about cost estimates for May 2016.
2. LYNX will need to purchase Microsoft SQL Server 2012 Enterprise Edition (2 Cores) prior to the implementation of the Test Environment.
• LYNX should adopt technologies that enhance its customers’ trip experience
  • Enhance smartphone applications
• LYNX should adopt technologies that will assist with multi-modal integration and regional coordination
  • 100% Clever, integration for entire bus fleet
  • Centralized Data Portal enhancements
• Update GIS Strategic Plan in 2020.
Thank You!

LYNX contact Info:  
Mira Bourouva, GISP  
GIS Coordinator  
(407) 254-6043  
mbourova@golynx.com

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