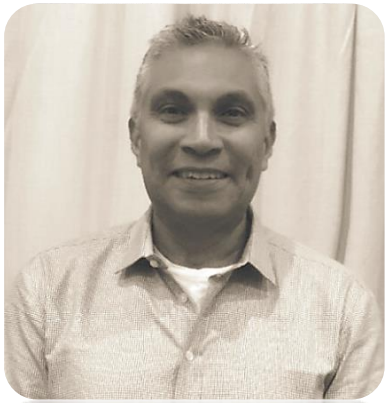
Planning and Executing a Pipeline Centerline Survey Program

Joe Medina

Managing Director, Consulting & Compliance Services

Jeff Allen

President



Joe Medina

- Over 30 years of utility experience
- Extensive background in:
  - Engineering, Maintenance, Construction, Operations and MAOP verification
- Expert in Asset Management/Work Management Systems development
- Consulting & Process Improvement Experience

Jeff Allen

- 24+ Years at Novara GeoSolutions
  (formerly Coler & Colantonio)
- Built Geospatial Services and Software Market
- Surveying Engineer by Education
- Supported by over 100+ GIS and Software professionals

Key Takeaways for this session

1. **Clear processes and procedures are necessary**
2. **Collect the data that you need and will use**
3. **Data processing is king**

Why Perform a PLCL Survey

The following are some examples of applications and/or enhancements created by performing a PLCL Survey

- **Improves pipeline location accuracy in GIS** – more accurate Class Locations and Consequence Areas
- **Easement protection** - assessment of encroachments
- **Risk management** - shallow main analysis, vertical surface penetrations analysis, geohazards assessments
- **Asset reconciliation with work management system** – e.g. spans and casings reconciliation
- **Asset visibility** - Pipeline marker analysis, vegetation management

What is a PLCL Survey

A pipeline centerline survey is a comprehensive survey using line locating and GPS Technology. Geolocations can be obtained for any item, but the most common are the following:

- Pipeline centerline points
- Maintenance items – e.g. damaged casing vents, exposed pipe, leaks
- Structures
- Vertical surface penetrations – e.g. utility poles
- Vegetation
- Geohazards – e.g. landslides
- Pipeline Markers – gaps able to be identified
- Pipeline depth

How is a PLCL Survey Performed

1. Establish how data will be used and stored
2. Develop Data Dictionary
   - Based on how data will be used
   - Volume of points required
   - Logical coding of points
3. Routes to be surveyed are categorized and prioritized
4. Routes are located and marked for surveyor
5. Pre-determined GPS accuracy is acquired for points
6. Field and data QC/QA is executed
7. Data is processed to make it meaningful
8. Data is delivered to pre-determined users and storage locations

Planning & Executing a PLCL Survey

Elements

- Contracting
- Specifications
- Pre-Work
- Tracking, scheduling, coordination
- QC / QA
- Integrating with GIS

Contracting

- **Vendor Management process**
  - Existing vs New Contracts
  - Liability clauses
  - Watch state boundaries - state licensure requirements
- **Identification of qualified contractors**
  - Linear surveying is a specialty
- **OQ for locating & marking pipelines?**

Specifications

- **Avoid specifying equipment**
- **Data Dictionary -- how much is too much?**
- **Acceptance criteria**
- **Progress reporting**
- **Data collection requirements – photos, coding, etc.**
- **Hazardous situation and environmental reporting**

Pre-Work

- **Pre-qualify survey crews**
- **Train crews on surveying process and data collection process**
- **Establish a clear Acceptance Criteria**
- **Landowner notification & community outreach**
- **Vegetation management**

Tracking, Scheduling, Coordination

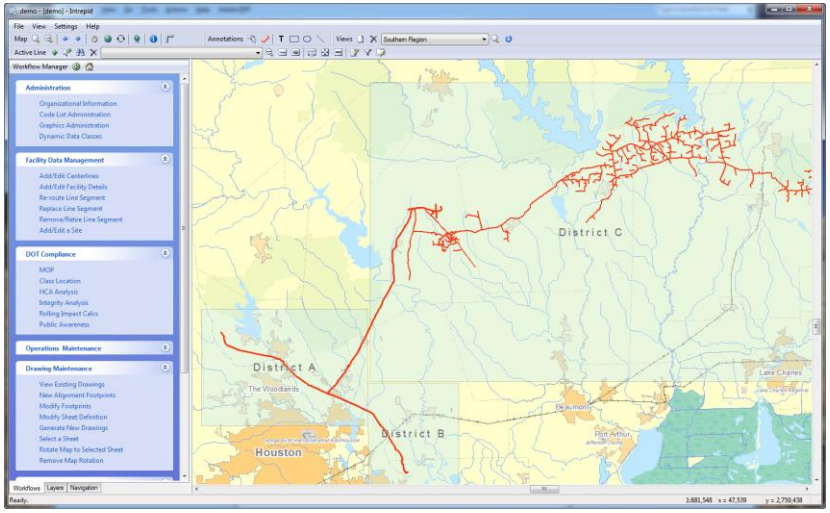
- **Route logistics – size of package, environment considerations, etc.**
- **Challenges of ongoing multiple surveys**
- **Consider portals**
- **Statuses are required to understand progress**
- **Excel will probably let you down…**

QA/QC

- **Establish QC/QA Processes**
- **QC checklists**
- **QA of Field Work**
  - Accuracy
  - Completeness
- **Receiving data from the field**
  - Equipment and systems available?

Integration with GIS

- **Data processing**
  - Points vs lines
  - Conflict resolution
- **Data induced resurveys**
- **Understanding control points and feature locations**



Thank You !!!