# Collector's User's Group!!!! Asset Management Path to AGOL & Collector

Mary Susan Knauss

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NYS Department of Transportation

# New State Contract Item

All Roadside Assets to be spatially located and inventoried.
AGOL – Collector

# As Built Data in Real Time

**Map Story**



NEW YORK
STATE OF
OPPORTUNITY™ | Department of Transportation

# The Summer we made it to the Cloud

# Assets are not Static

## How do we capture the change?

### Working Assumptions:

- The Regions are the primary collectors of asset data
- Current business processes are not capturing the state changes
- Current Inventories are not robustly supporting the asset lifecycle thru planning, design, construction or maintenance processes.

### Working Solution:

- Analysis and revise the business processes
- Agree on a Data schema
- Integrate access and updates across departments
- Deliver the data using GIS for reuse in analysis , et al.

Progress in Asset Management_20131205

**Life Cycle Cost**

One time and Recurring Costs
over the Expected life of the Asset

•A basic management measure for a physical asset.
•Quality Practices are used to drive Life Cycle Costs down.
•Changes in business processes result
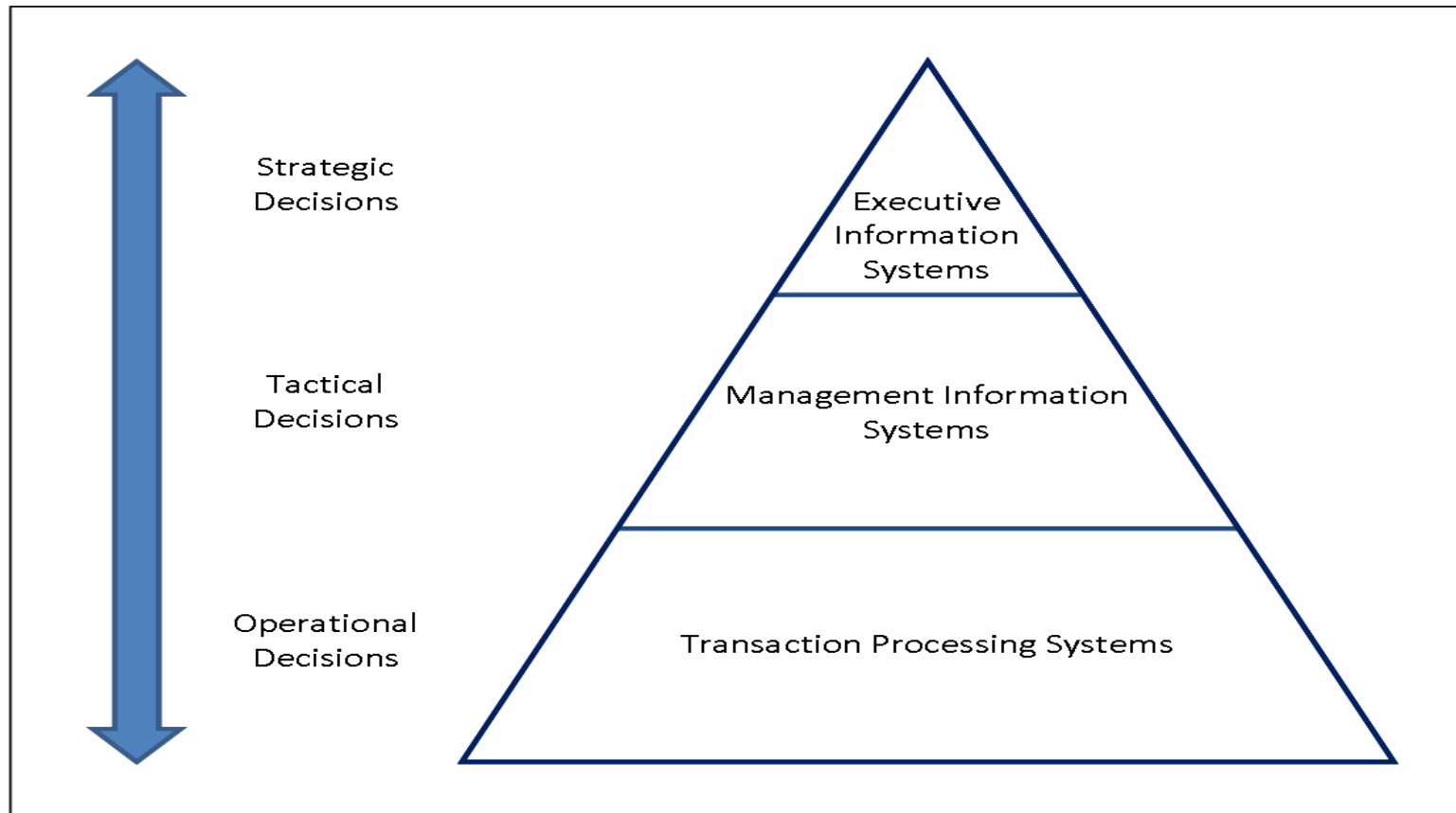•Repeat until 6 Sigma is reached

ISO 9000

# Getting it all on a map:

- Improves decision making
- Provides specific and detailed information to Design & Construction
- Multiyear projects can be tracked

Examples:

- Rustic Guide Rail Replacement
- Bi- Annual Sign Replacement Contract

Strategic Decisions

Tactical Decisions

Operational Decisions

Executive Information Systems

Management Information Systems

Transaction Processing Systems

- Provides a shared User Interface
- Access to shared enterprise data
- Supports decision making on all three tiers of Management Information Systems.

What are the elements of a Life Cycle Cost for an asset class?

- What
- Where
- How Many
- Expected Life
- Install Date
- One Time Cost
- Recurring Cost
- Other measures

What assets can we do that for?

P:\Miscellaneous\PPD-Asset Management

Survey Item in D Contract



Edit at the Desktop



Automated Collection



Inspections using Check In Check out

- Provides a shared User Interface
- Access to shared enterprise data
- Supports decision making on all three tiers of Management Information Systems.

# ADA Ramps and Sidewalks Project Location
# Newburgh, NY  2009

Legend

**RampsOnStateOwned**

CONDITION

- 2
- 3
- 4
- 5

**SidewalkStateOwned**

CONDITION

— 2
— 3
— 4
— 5

▦ r8_nr National Register - I think

▨ r8_ej Environmental Justice

D256759

STATE OF NEW YORK
STATE DEPARTMENT OF TRANSPORTATION

— LOCATION OF WORK

THIS CONTRACT WILL RENEW EXISTING LONG LINE AND/OR
SPECIAL MARKINGS ON VARIOUS HIGHWAYS IN ORANGE,
ROCKLAND AND ULSTER COUNTIES.

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
OFFICE OF ENGINEERING

# RECORD   PRINTS

PAVEMENT MARKING INSTALLATIONS
AT VARIOUS LOCATIONS

ORANGE, ROCKLAND, AND ULSTER COUNTIES

11 SHEETS                    CONTRACT D256759

F.A. PROJECT 33D-000S-640

CONTRACTORS NAME  _Accent Stripe Inc._

AWARD DATE  _March 15, 1996_

COMPLETION DATE  _November 15, 1996_

REGIONAL DIRECTOR  _Albert J. Bowman_

ENGINEER IN CHARGE  _Arthur W. Barton_

FINAL COST TOTAL  _$1,305,041.45_

FEDERAL SHARE          FEDERAL
01                $1,305,041.45

RECOMMENDED BY                  RECOMMENDED BY                  RECOMMENDED BY                  RECOMMENDED BY                  APPROVED BY
10-27-95
REGIONAL DESIGN ENGINEER   DATE   REGIONAL TRAFFIC ENGINEER   DATE   REGIONAL CONSTRUCTION ENGINEER   DATE   REGIONAL HIGHWAY MAINTENANCE ENGINEER   DATE   REGIONAL DIRECTOR   DATE

D256759

1996 PAVEMENT MARKING CONTRACT
ORANGE, ROCKLAND AND ULSTER COUNTIES

| REG. ROAD REG. NO. | STATE | SHEET NO. | TOTAL SHEETS |
| --- | --- | --- | --- |
|  | N.Y. | 1 | 11 |

| FEDERAL AID PROJECT NO. | 33D-000S-640 |
| --- | --- |
| CAPITAL PROJECT IDENTIFICATION NO. | 8804.32.321 |

ESTIMATE OF QUANTITIES

| ITEM NUMBER | DESCRIPTION | UNIT | QUANTITY | FINAL |
| --- | --- | --- | --- | --- |
| 03654.0480 | PORTABLE CELLULAR TELEPHONE EQUIPMENT | EA | 10 | 22.00 |
| 03654.0450C | TWO - WAY FM MOBILE RADIO | EA | 10 | 19.50 |
| 03654.0510 | DISTANCE MEASURING DEVICE | EA | 1 | 2.00 |

GIS geodatabases exist for:

- Bridges
- LCIS
- RIS
- Signals
- Overhead Signs
- Traffic Count
- Emergency Callouts
- Traffic Investigations
- Major Commercial Permits
- Record Plans
- Small Culverts
- PVMS
- PSS
- Stormwater Outfalls

Makes all of the Information

**ACCESSIBLE**

Asset Attributes
Work Flow Status
User Log
Source link and metadata
  Record Plans
  ADA Stamp
  SEQR

## Database Properties

General | **Domains**

| Domain Name | Description |
|---|---|
| BdgDetail | Rail SubType: Bridge Detail |
| BdgPost | Rail SubType: Bridge Post |
| BdgTerminal | Rail SubType: Bridge Terminal |
| BoxDetail | Rail SubType: Box Detail |
| BoxPost | Rail SubType: Box Post |
| BoxTerminal | Rail SubType: Box Terminal |
| CableDetail | Rail SubType: Cable Detail |
| CablePost | Rail Subtype: Cable Post |
| CableTerminal | Rail SubType: Cable Terminal |

**Domain Properties:**

| Field Type | Text |
|---|---|
| Domain Type | Coded Values |
| Split policy | Default Value |
| Merge policy | Default Value |
| | |
| | |

**Coded Values:**

| Code | Description |
|---|---|
| 4BIS | Four Bolt Internal Splice |
| 2BIS | Two Bolt Internal Splice |
| EC | External Coupling |
| RUST | Rustic Box |
| MEDB | Median Box |
| MEDEC | Median Box External Coupling |

OK | Cancel | Apply

## Edit Form

Form   Page   Control   Layout

**Page 1** | Page 2 | Page 3 | Page 4

RailType [_____▼]

Rail Detail [_____▼]

Rail Post [_____▼]

Lead Terminal [_____▼]

Trail Terminal [_____▼]

Condition [_____▼]

Reflec [_____▼]

OK | Cancel

## Edit Form

Form   Page   Control   Layout

Page 1 | **Page 2** | Page 3 | Page 4

Route [_____▼]

Travel Direction [_____▼]

Side [_____▼]

Length in Feet [_____]

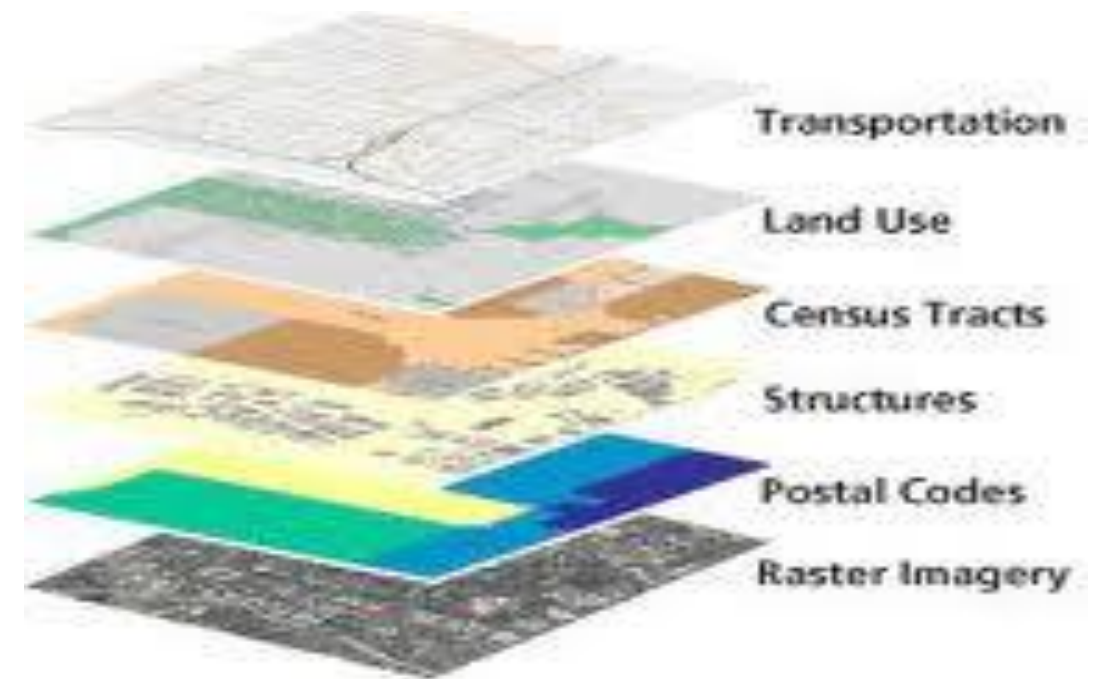Ref Marker First 9          Last 3
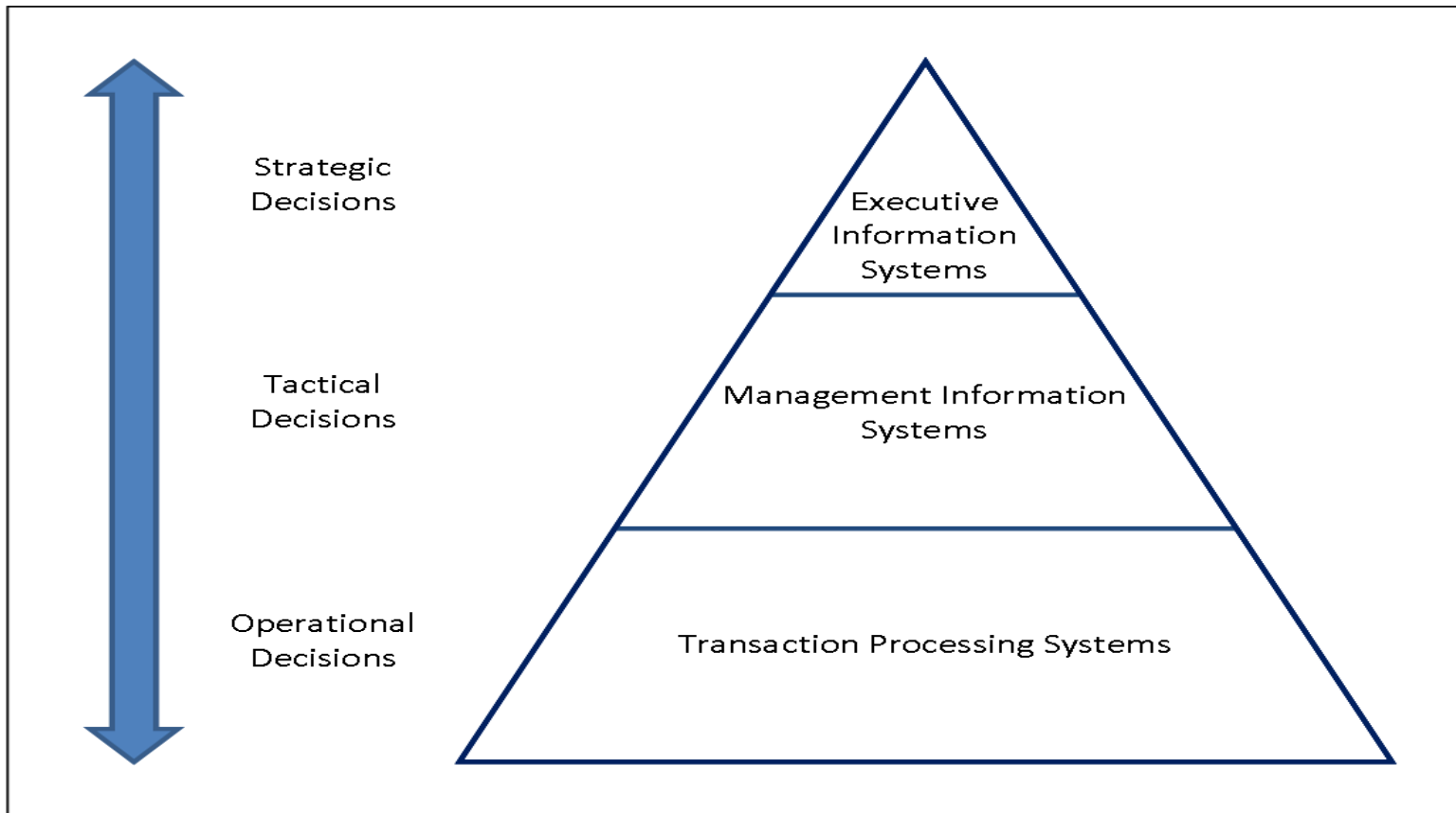
[_____▼]   [_____]

County [_____▼]

OK | Cancel

**DATA SCHEMA AND DATA COLLECTION**

- ✓ Access to shared enterprise data
  - ✓ More productive work flow
- ✓ Provides a shared User Interface
  - ✓ Reduces training needs
- ✓ Supports Decision Making
  - ✓ More Efficient Collaboration



Transportation

Land Use

Census Tracts

Structures

Postal Codes

Raster Imagery

- Provides a shared User Interface
- Access to shared enterprise data
- Supports decision making on all three tiers of Management Information Systems.

# Effective Operation Support  Systems reflect workflow

- Planning – Cost /Benefit Analysis – ideally ROI
- Design -  Capital costs
- Construction -  Asset Acceptance
- Maintenance -  Recurring costs
- Permits – Changes
- Design – Improved Specifications



Life Cycle of Infrastructure
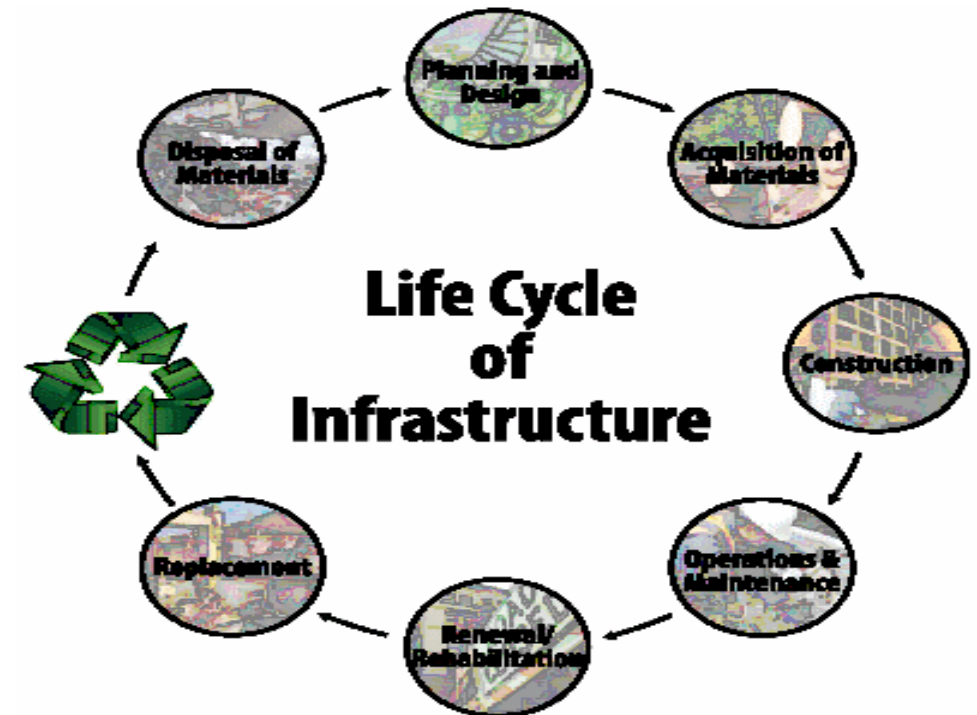
# Business Needs

- Manage FHWA Compliance
  - "assessment and management method"
- Support Workflows
  - New Construction; Contracts
  - Structures Inspections; Cantilever & Spans
  - Traffic & Safety; Work Tickets
  - Maintenance; "replace in kind and in place"
- Emergencies and "Priority Interrupts"

# Continuous Collaboration
# Improved Productivity

## The First Five

- Bespoke maps and layers
  - Design Report , SEQR, Assets, Documents, Record Plans
- Penetrates Program Area IT Silos
  - Site Manager Current Construction Contacts
- Aggregates Information for C3/COP use
  - RSDA, Road Service Callouts, CAMCI viewer

**CURRENT**
Stove-piped
Asset Management

Asset / Fleet Management

Drilling and Well site Optimization Systems

Operational Management Systems

Pipeline Integrity Systems

Performance Monitoring / Event Management Systems

IT Asset Management

Customer Relationship Management

Supply Chain Management

FINANCIAL MANAGEMENT

Human Resources Management

**NEW**
Strategic Asset and Service Management

Customer Relationship Management

Supply Chain Management

FINANCIAL MANAGEMENT

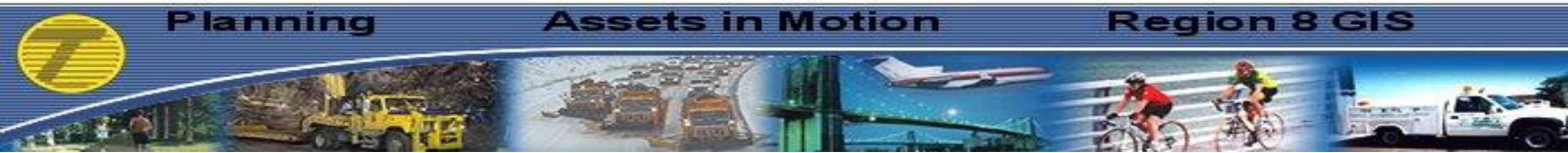Strategic Asset and Service Management

Human Resources Management

## Life Cycle Cost

One time and Recurring Costs over the Expected life of the Asset

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•Repeat until 6 Sigma is reached

ISO 9000

## What is an Asset?

From Wikipedia;

"In financial accounting, **assets** are economic resources. Anything tangible or intangible that is capable of being owned or controlled to produce value and that is held to have positive economic value is considered an asset. Simply stated, assets represent ownership of value that can be converted into cash (although cash itself is also considered an asset).[1]
The balance sheet of a firm records the monetary[2] value of the assets owned by the firm. It is money and other valuables belonging to an individual or business.[1] Two major asset classes are tangible assets and intangible assets. Tangible assets contain various subclasses, including current assets and fixed assets.[3] Current assets include inventory, while fixed assets include such items as buildings and equipment.[4]"

Seems straight forward until…..
http://en.wikipedia.org/wiki/Asset_management_(disambiguation)

Seems straight forward until…..
http://en.wikipedia.org/wiki/Asset_management_(disambiguation)

**By this definition:**
**Asset Management is managing the citizens investment in transportation.**

**"Investment management** is the professional management of various securities (shares, bonds and other securities) and assets (e.g., real estate) in order to meet specified investment goals for the benefit of the investors. Investors may be institutions (insurance companies, pension funds, corporations etc.) or private investors (both directly via investment contracts and more commonly via collective investment schemes e.g. mutual funds or exchange-traded funds)."

# The success of Services and Utilities is determined by geography

- What distinguishes services businesses from product businesses is their geographical dependency.
- What distinguishes a utility service is that there is no practical alternatives.
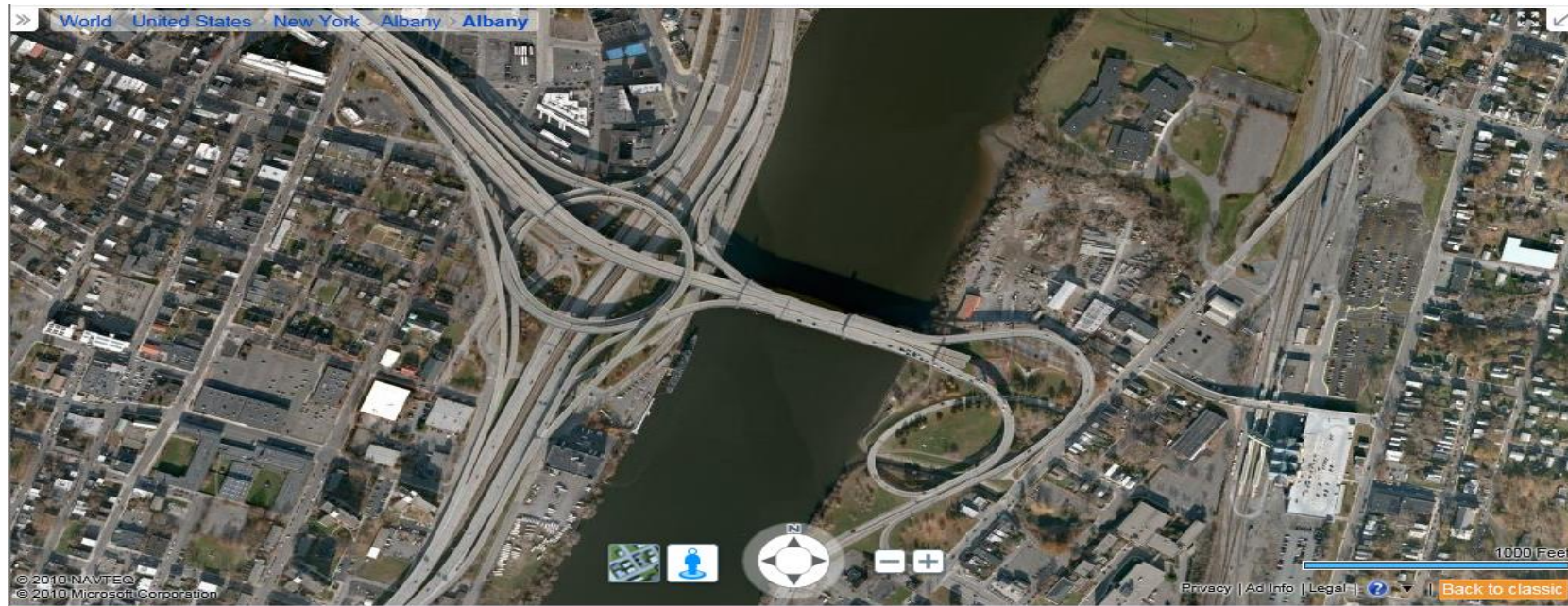
**Assets represent ownership of value that can be converted into cash.**

•Networks are natural monopolies having inseparable components
•Revenue streams  stand in for "sale price" as the measure of value created

International Accounting Standards Board .[5] "An asset is a resource controlled by the enterprise as a result of past events and from which **future economic benefits** are expected to flow to the enterprise."[6]

NYSDOT has no pricing mechanism which makes Asset  Management  Practices a poor fit at the  Executive System Level

## Value Analysis

| | Condition | Multiplier | Avg. Value | 2016 # | 2016 Lump Sum Value | 2017 # | 2017 Lump Sum Value | Differential # | Differential Lump Sum Value |
|---|---|---|---|---|---|---|---|---|---|
| **Signage** | Excellent | 1 | $150.00 | 70 | $10,500.00 | 110 | $16,500.00 | 40 | $6,000.00 |
| | Good | 0.75 | $112.50 | 100 | $11,250.00 | 79 | $8,887.50 | -21 | -$2,362.50 |
| Sherburne average est. | Fair | 0.5 | $75.00 | 92 | $6,900.00 | 71 | $5,325.00 | -21 | -$1,575.00 |
| replace cost = $150 | Replace | 0.25 | $37.50 | 35 | $1,312.50 | 28 | $1,050.00 | -7 | -$262.50 |
| | **Sub Total** | | | 297 | $29,962.50 | 288 | $31,762.50 | -9 | $1,800.00 |
| **Culverts** | Excellent | 1 | $2,000.00 | 48 | $151,880.00 | 58 | $178,280.00 | 10 | $26,400.00 |
| | Good | 0.75 | $1,500.00 | 78 | $154,567.50 | 79 | $158,677.50 | 1 | $4,110.00 |
| Sherburne average est. | Fair | 0.5 | $1,000.00 | 118 | $136,050.00 | 112 | $129,905.00 | -6 | -$6,145.00 |
| replace cost = $2500 | Replace | 0.25 | $500.00 | 102 | $55,750.00 | 99 | $54,000.00 | -3 | -$1,750.00 |
| | **Sub Total** | | | 346 | $498,247.50 | 348 | $520,862.50 | 2 | $22,615.00 |
| | **Total** | | | | $528,210.00 | | $552,625.00 | | $24,415.00 |

Note: Culvert **VALUES** are based on length and diameter and **NOT THE AVERAGE REPLACE COST**. The culvert average replace cost, above, is based on the cost of **REPLACING ALL** culverts with D = 5ft or less . Signage is based on an average value of $150 per sign

### Culvert Cost Analysis

**Purchasing Length:**
1. Rounded up to nearest 10 feet
(ex. Culvert of 42' = 50' purchasing lengt

**Unit cost based on diameter:**
D = 2ft or < 2ft is estimated at $50/ft
Add $25/ft to cost for increasing diameter
(ex. For D = 4 ft, Unit Cost = $100/ft)

**Current Value**
Current value = multiplier X replace cost
(Multiplier is based on condition)

# ASSET NAMING

Mary Susan Knauss,  Girl Scout

# What's in a name?

*Unique Asset Identification using USNG Coordinates*

Elisabetta T. DeGironimo, GISP

# GUID Versus USNG

- A **universally unique identifier** (**UUID**) is a 128-bit number used to identify information in computer systems. The term **globally unique identifier** (**GUID**) is also used.
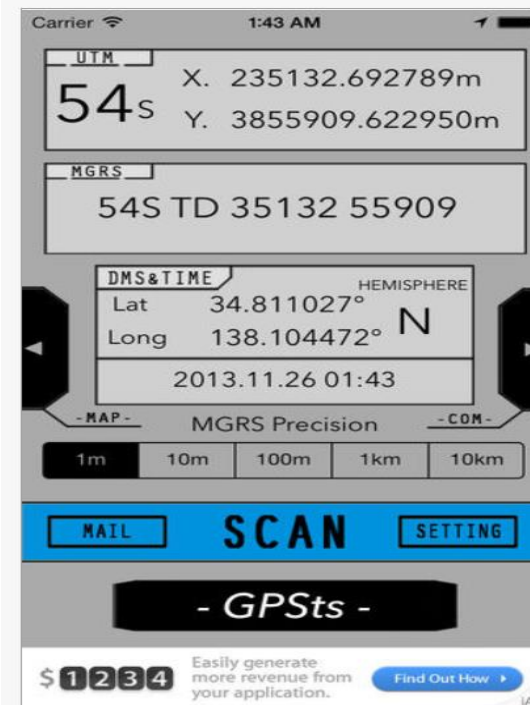
00112233-4455-6677-8899-aabbccddeeff

# USNG In Use



A **SharedGeo** Project - www.sharedgeo.org

**Emergency Location**

For Help
Dial 911

18T
VN

For Help
Dial 911

8079
7206

GPS set to U.S. National Grid/MGRS (NAD83)

For educational purposes only. Full disclaimer is available at www.usngcenter.org
To learn more about the U.S. National Grid visit: www.usngcenter.org
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usngmarker.org

- Smart phone apps
  - GPSts



iPhone Screenshot

Carrier    1:43 AM

UTM
54s    X. 235132.692789m
       Y. 3855909.622950m

MGRS
54S TD 35132 55909

DMS&TIME              HEMISPHERE
Lat    34.811027°      N
Long   138.104472°

2013.11.26 01:43

- MAP -    MGRS Precision    - COM -

1m    10m    100m    1km    10km

MAIL    SCAN    SETTING

- GPSts -

$ 1234   Easily generate more revenue from your application.    Find Out How ▶

# Common Language Location Identification

- **CLLI code** (sometimes referred to as **CLLI name** or **COMMON LANGUAGE Location Identifier Code**, and often pronounced as *silly*) is a [Common Language Information Services](#)identifier used within the North American [telecommunications](#) industry to specify the location and function of telecommunications equipment or of a relevant location such as an international border or a supporting equipment location, like a manhole or pole.[1] Originally, they were used by [Bell Telephone](#) companies, but since all other telecommunications carriers needed to interconnect with the dominant Bell companies, CLLI code adoption eventually became universal. CLLI codes are now maintained and issued by [Telcordia](#), which claims trademarks on the names "Common Language" and "CLLI".[1]

- CLLI codes are useful to telecommunications companies for ordering phone service, for the rating of call detail records for billing purposes, and to assist in tracing calls. CLLI codes are associated with Vertical and Horizontal coordinates (frequently abbreviated to "V and H coordinates"), which were developed by [AT&T](#) researcher Jay K. Donald to provide a relatively simple method of calculating distance between two network locations.[2] Various mileage-sensitive services are priced according to the V and H coordinates associated with the two endpoints' CLLI codes.[2][3]

- Wikipedia

# SAR for Trooper 2


Maryland State Police Medical helo

27 – 28 Sept 2008

SYSCOM: *"I got 'em … the last time I have 'em is at* *thirty-eight fifty-two seventeen and then seventy-six fifty-two twenty-six."*   ( 38 52 17, 76 52 26)

( i.e.   18S UJ 376 039   or   *UJ 376 039*   or   UJ 3768 0395)

**Although authorities had the *precise location* of the Trooper 2 crash site –  *first responders were delayed 1.5 hours* in arriving on scene because of  ineffective use of coordinates.**

# Latitude and Longitude

- Long maritime and aeronautical history
- Not x-y
- No standard grid size
- There are three(3) versions
  - DD-MM.mmm    (NSARC standard version)
  - DD.ddd        (GIS version)
  - DD-MM-SS       (KSC Map911)
- Multiple versions cause confusion and result operational delays
  - Hurricane Katrina
  - Mayo Helicopter crash, Clay County, FL  {December 2011}
- It is *not* Florida's designated coordinate system for land-based operations

# 18S UJ 376 039   crash site
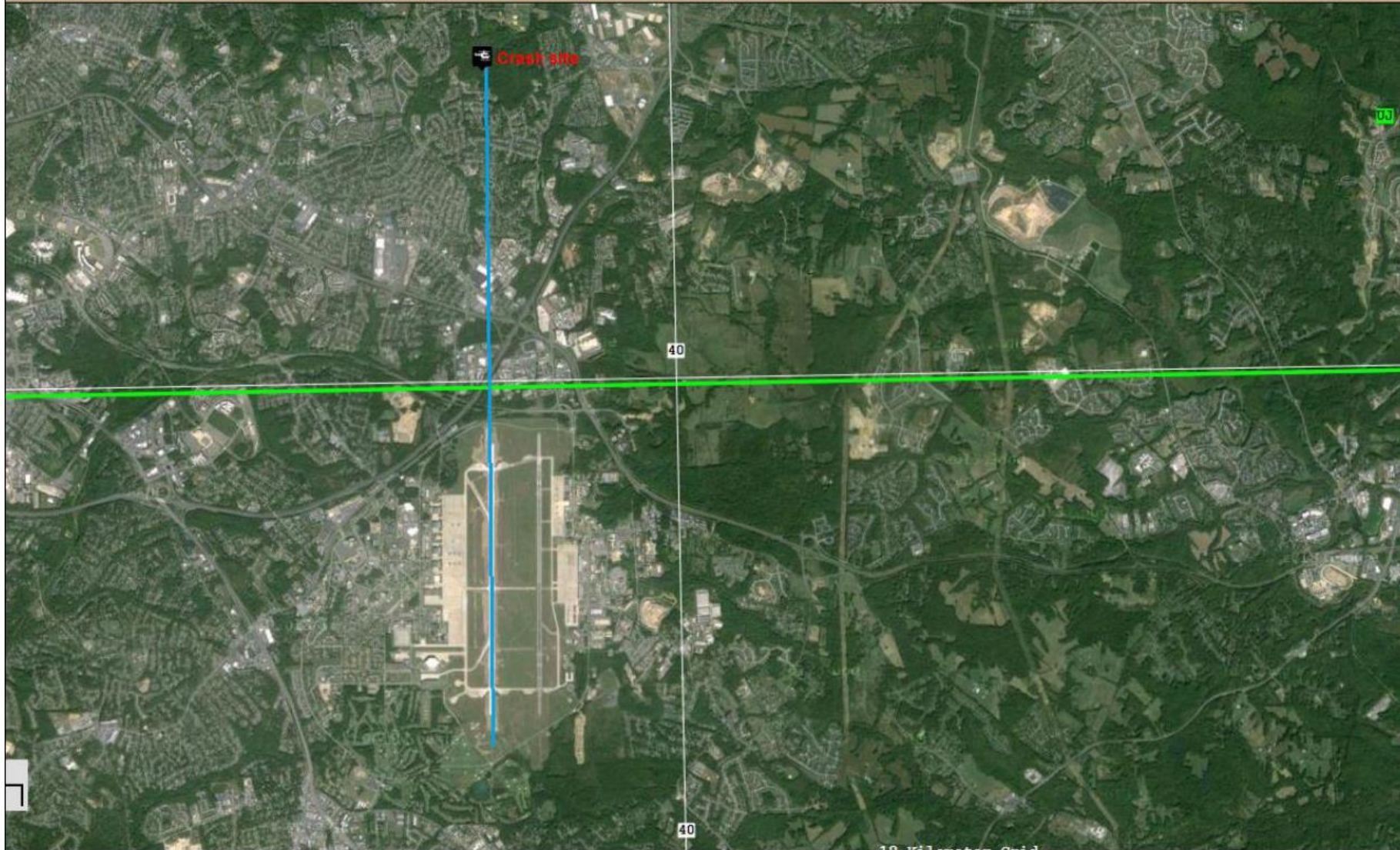


In-line with a runway of Andrew's Air Force Base