ArcGIS Pro and Tasks

Increasing editing efficiency for Philadelphia Next-Generation 911

Office of Innovation & Technology
CityGeo
DATA ANALYSIS APPLICATIONS

Next Generation 9-1-1

Legacy 9-1-1	Next Generation 9-1-1
Calls made from mobile and landline telephones	Voice/text/video/photo from a variety of devices sent through via the internet including vehicle collision sensors and medical alert systems
Location determined from Master Sheet Address Guide or network-based cellular information	Location determined in a Spatial Interface the is solely based on geospatial data
Selective router diverts calls to Public Safety Answering Point (PSAP)	Calls routed automatically based on detailed geographic location
Overflow of calls is possible under heavy load (callers can receive a busy signal)	Overflow calls can be rerouted to nearby PSAPs since they all use the same system standards

Need for 9-1-1 Overhaul

- Today’s system, that is analog network-based, is lagging behind new technologies
- Shift in how data is consumed and shared
- Expanding submitted media can provide extra information to responders before arriving at an emergency
- Increases accessibility to those with hearing/speaking problems

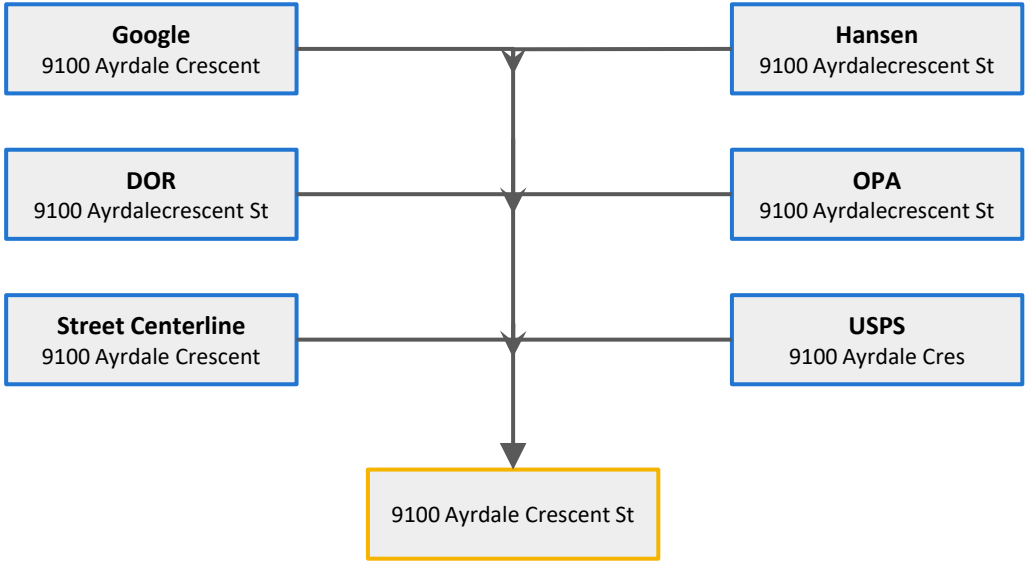
City of Philadelphia NG911

- Address Information System (AIS)
    - Combines addresses across city systems
    - Resolves discrepancies
    - Provides singular address lookup
    - Currently 962,361 addresses to be validated for NG911

- NG911 address standards by National Emergency Number Association (NENA)

Address Information System (AIS)

- Combines address information across city systems
- Resolves discrepancies in addresses



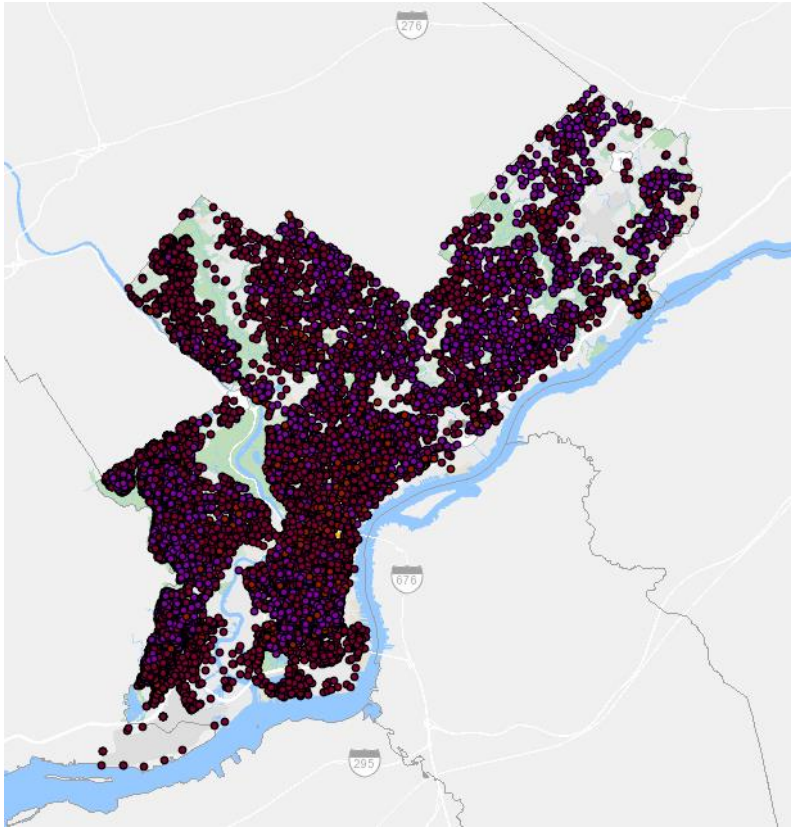
NENA - addressing guidelines

- Site/Structure Address points are “strongly recommended” with attributes including full street address (including street suffix and prefix) and address “place type”

- Address points are suggested to be placed at least at building centroids

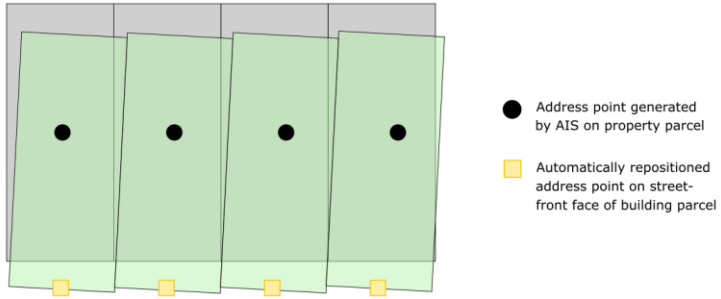
- Landmarks (often locations without street addresses) can be included in the address dataset
    - Such as athletic fields, campus buildings, prominently known features, planned communities, named residential buildings

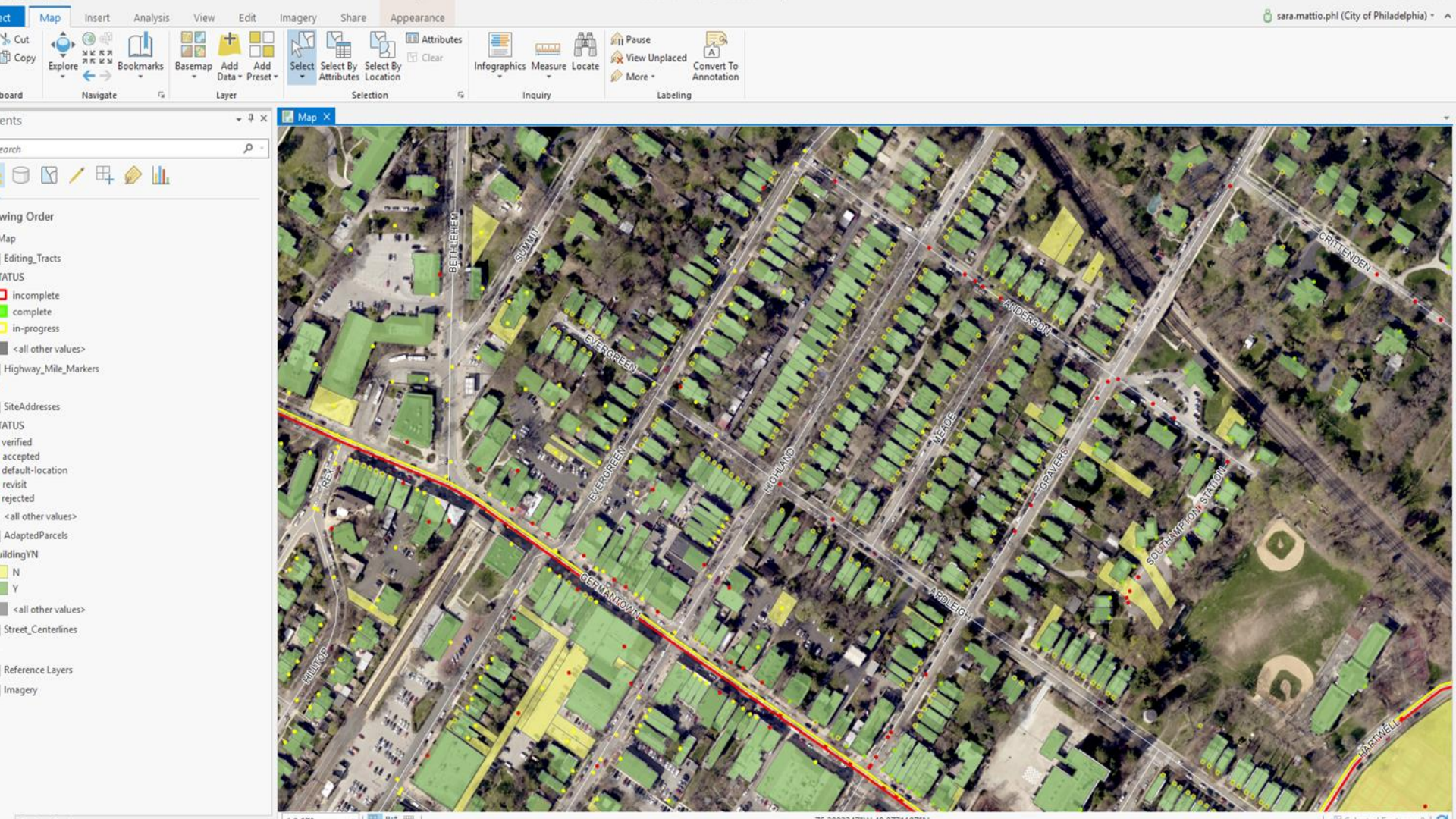
Total Points: 962,363



PHL-NG911 Process

- We are starting with accurate addressing across Philadelphia
- Use current address data from our AIS using detailed Cyclomedia street imagery and Pictometry
- Aiming to place address points on primary building entries
- Beyond NG911: develop most accurate addressing dataset for other departments to use




Map
Insert
Analysis
View
Edit
Imagery
Share
Appearance
sara.mattio.phl (City of Philadelphia)
Cut
Copy
Explore
Bookmarks
Navigate
Basemap
Add Data
Add Preset
Layer
Select
Select By Attributes
Select By Location
Attributes
Clear
Selection
Infographics
Measure
Locate
Inquiry
Pause
View Unplaced
More
Convert To Annotation
Labeling
Map
wing Order
Map
Editing_Tracts
TATUS
incomplete
complete
in-progress
<all other values>
Highway_Mile_Markers
SiteAddresses
TATUS
verified
accepted
default-location
revisit
rejected
<all other values>
AdaptedParcels
ildingYN
N
Y
<all other values>
Street_Centerlines
Reference Layers
Imagery
BETHLEHEM
SUMMIT
EVERGREEN
HIGHLAND
MEADE
GRAVERS
ANDERSON
CRITTENDEN
SOUTHAMPTON STATION
ARDLEIGH
GERMANTOWN
REX
HILLTOP
JARNELL

Challenges

- Massive dataset: 962,363 points (and growing)
- Many ranged addresses with stacked points
- Lack of imagery available for large sites where the primary entrance is unclear
- Drafted standards do not always align with our data

ArcGIS Pro - NG911_Production - Map

Project | Map | Insert | Analysis | View | Edit | Imagery | Share

Not signed in

Paste | Cut | Copy | Clipboard

Explore | Navigate | Bookmarks

Basemap | Add Data | Add Preset | Layer

Select | Select By Attributes | Select By Location | Attributes | Clear | Selection

Infographics | Measure | Locate | Inquiry

Pause | View Unplaced | More | Convert To Annotation | Labeling

Contents

Search

Drawing Order

- Map
  - Editing_Tracts
    - STATUS
      - incomplete
      - complete
      - in-progress
      - <all other values>
  - Highway_Mile_Markers
  - SiteAddresses
    - STATUS
      - verified
      - accepted
      - default-location
      - revisit
      - rejected
      - <all other values>
  - AdaptedParcels
    - BuildingYN
      - N
      - Y
      - <all other values>
  - Street_Centerlines
  - Reference Layers
  - Imagery
    - GIS_GSG.IMAGERY_2017
    - GIS_GSG.IMAGERY_2016
    - GIS_GSG.IMAGERY_2015
    - CityImagery_2016_3in

Contents | Tasks | Catalog

Map

1:627 | 75.0348489°W 40.1042259°N | Selected Features: 0

Attributes

Make a selection.

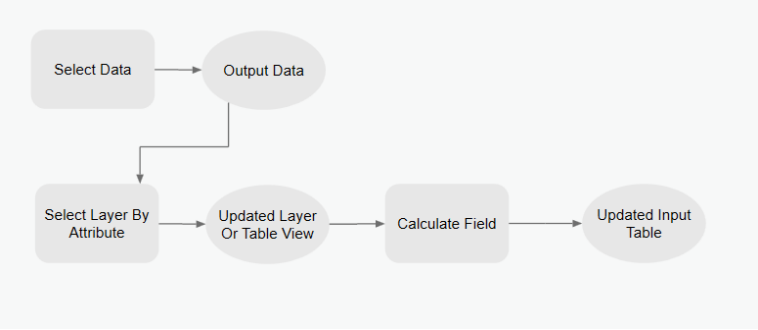
Select one or more features

Attributes | Geoprocessing

Tasks in ArcGIS Pro

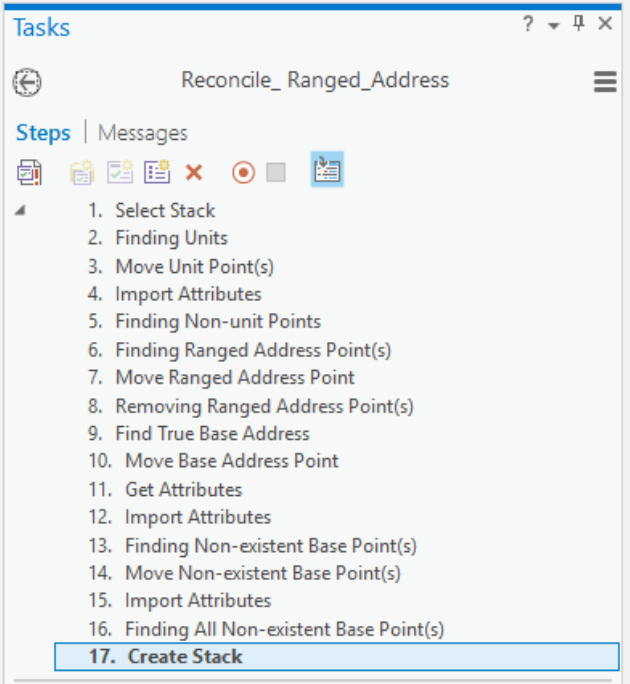
ModelBuilder

- Intended for creating new geoprocessing workflows for automation.
    - Useful for batch processes that can reused by other users with different data



Tasks

- Sequential steps to help guide a user through a workflow
  - Increase efficiency
  - Useful for when steps require user input
- At each step one can control:
  - Command/tools
  - Active map
  - Turning layers on/off
  - Save/recall/switch selections
  - Error checking



Additional benefits of using Tasks

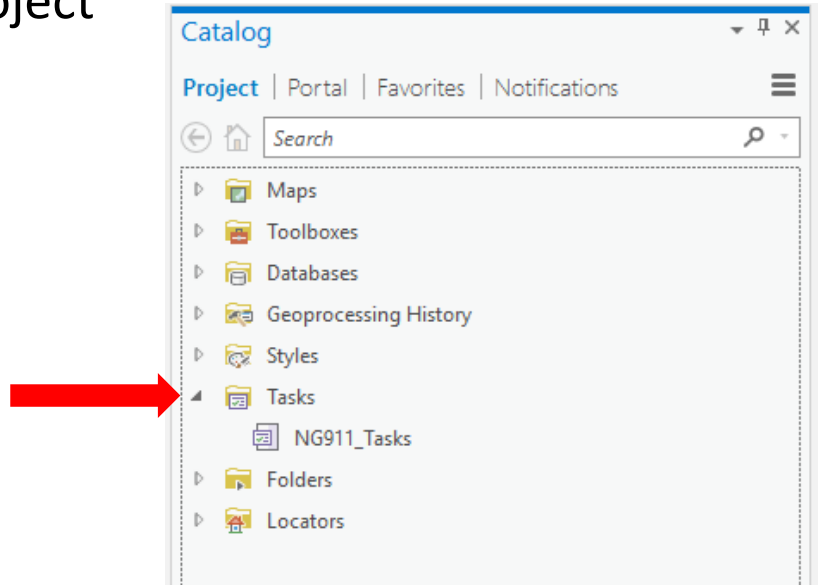
- Maintain best practices
  - Reduce confusion where there are multiple ways to complete a workflow
  - Improve quality and follow standards

- Improving efficiency on repetitive tasks
  - Reducing mouse clicks
  - Changing selections as needed
  - Switch maps automatically
  - Open proper tools when needed

- Tutorials, guides, and training

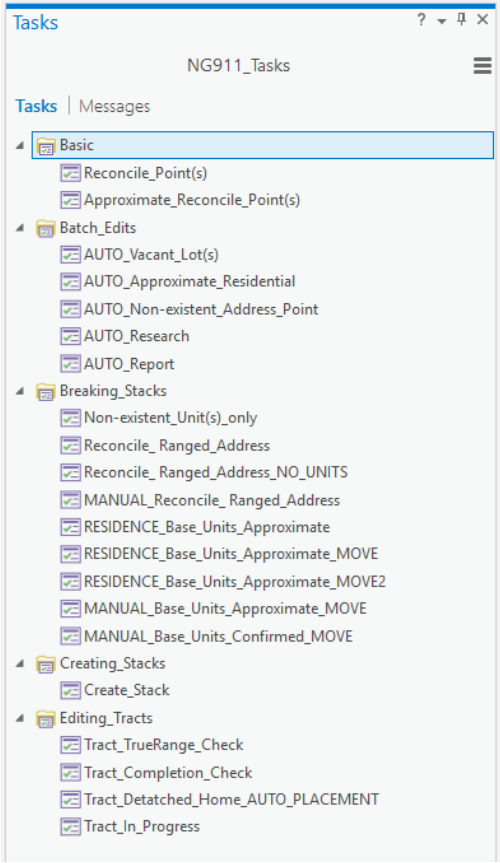
Using Tasks

- Tasks are project items in ArcGIS Pro and can be saved in a project and exported



Using Tasks

- Within a project, you can create sets of tasks that are organized by folder

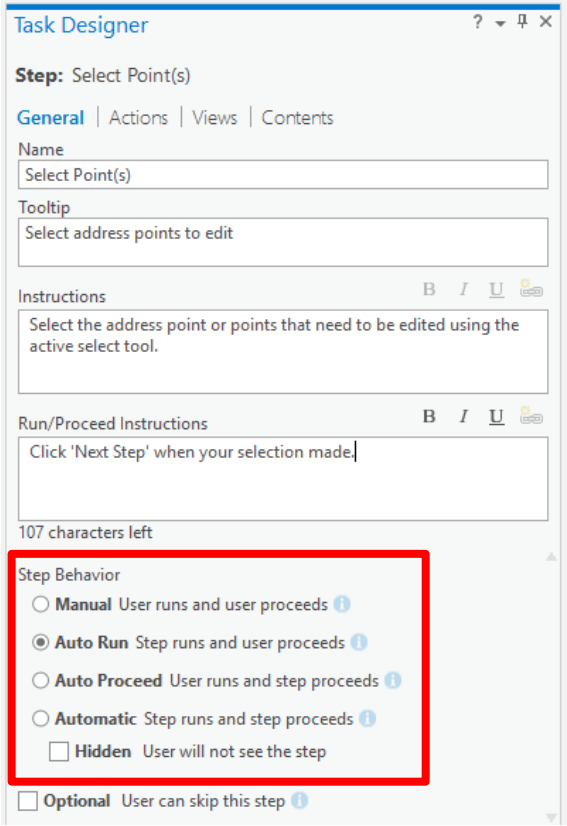


Getting started designing a Task

- Run through your workflow manually and note the steps
  - Tools/commands used
  - Selections made
  - Interface switching
  - Any scripts that are used

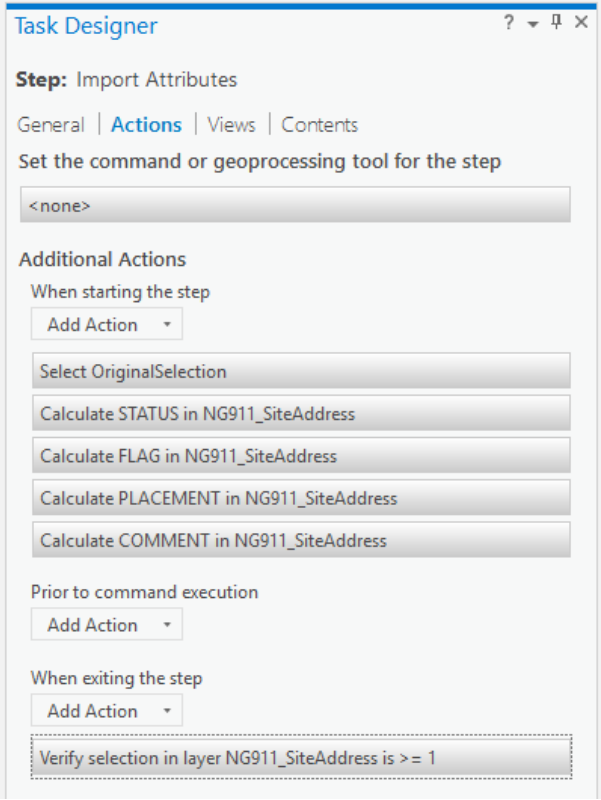
Configuring steps in Tasks

- Step behavior:
  - Manual - user clicks ‘Run’ to start the step and clicks ‘Next Step’ to proceed
  - Auto Run - Step automatically starts, user performs an action and clicks ‘Next Step to proceed
  - Auto Proceed - User clicks ‘Run’ to start step, action runs and automatically proceeds
  - Automatic - Step automatically starts, performs action, and proceeds



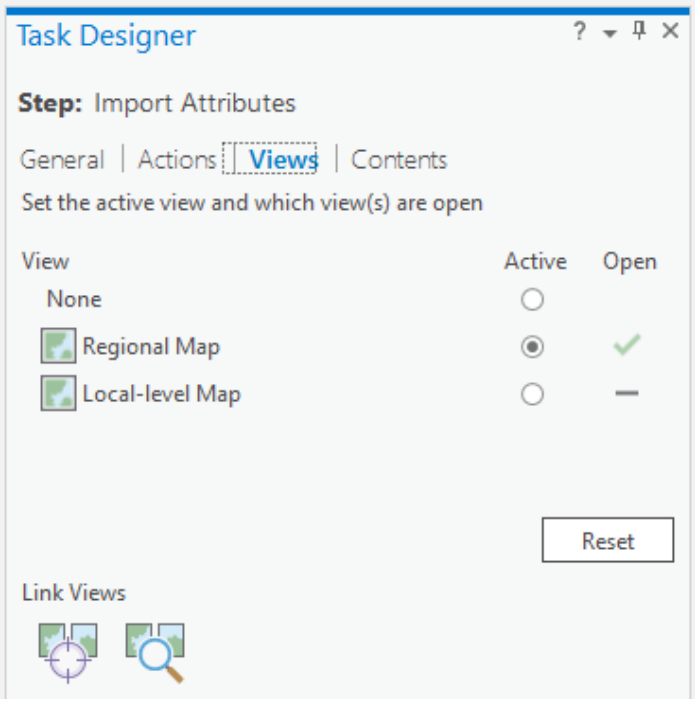
Configuring steps in Tasks

- Task actions:
  - Commands include tools, scripts, models
  - Additional actions can be performed when starting step, before executing command, and when exiting a step
    - Saving/recalling/changing selection from previous steps
    - Calculate fields
    - Validation checking



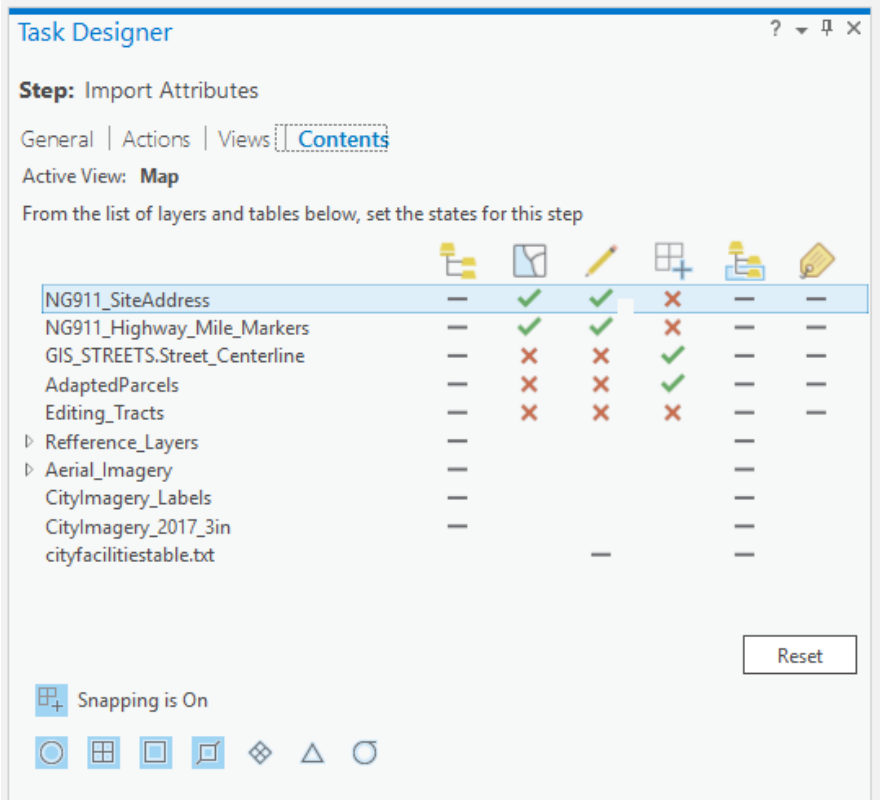
Configuring steps in Tasks

- View control:
  - Change active maps
  - Link or unlink views



Configuring steps in Tasks

- Content control:
  - Visible layers
  - Selectable layers
  - Editable layers
  - Snapping
  - Labeling



Task for simple Address Reconciliation

ArcGIS Pro - NG911_Production - Map

Project | Map | Insert | Analysis | View | Edit | Imagery | Share

Not signed in

Paste | Cut | Copy — Clipboard

Save | Discard | No Topology | Status | Error Inspector — Manage Edits

Snapping — Snapping

Create | Modify | Delete — Features

Select | Attributes | Clear — Selection

Move | Vertices | Reshape | Split Line | Split | Merge — Tools

Mode | No surfaces — Elevation

Manage Quality — Data Reviewer

Tasks

NG911 Tasks

Tasks | Messages

- Reconciling Points
  - Reconcile Points
  - Batch Comment
  - Reconcile Units
  - Rowhome with Units
  - Quick Attribute
  - Small Batch Auto-Accept Homes
  - Vacant Lot
  - True Range
  - Ranged Addresses with Units
  - Ranged Addresses
  - Lot with Parking
- Editing Tract Progress
  - In-Progress Tract
  - Completed Tract
  - Tract Completion Check
  - Auto-Accept Homes

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Map

1:848 | 75.2110019°W 40.0827404°N | Selected Features: 0

Attributes

Make a selection.

Select one or more features

Attributes | Geoprocessing

Task for more complex Address Reconciliation

ArcGIS Pro - NG911_Production - Map

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Not signed in

Clipboard: Paste, Cut, Copy

Manage Edits: Save, Discard, No Topology, Status, Error Inspector

Snapping: Snapping

Features: Create, Modify, Delete

Selection: Select, Attributes, Clear

Tools: Move, Vertices, Reshape, Split Line, Split, Merge

Elevation: Mode, No surfaces

Data Reviewer: Manage Quality

Tasks

NG911 Tasks

Tasks | Messages

- Reconciling Points
  - Reconcile Points
  - Batch Comment
  - Reconcile Units
  - Rowhome with Units
  - Quick Attribute
  - Small Batch Auto-Accept Homes
  - Vacant Lot
  - True Range
  - Ranged Addresses with Units
  - Ranged Addresses
  - Lot with Parking
- Editing Tract Progress
  - In-Progress Tract
  - Completed Tract
  - Tract Completion Check
  - Auto-Accept Homes

Contents | Tasks | Catalog

Map

1:657

75.1667070°W 39.9447881°N

Selected Features: 0

Attributes

Make a selection.

Select one or more features

Task for checking editing tract completion

ArcGIS Pro - NG911_Production - Map

Project | Map | Insert | Analysis | View | Edit | Imagery | Share

Not signed in

Clipboard: Paste, Cut, Copy

Navigate: Explore, Bookmarks

Layer: Basemap, Add Data, Add Preset

Selection: Select, Select By Attributes, Select By Location, Attributes, Clear

Inquiry: Infographics, Measure, Locate

Labeling: Pause, View Unplaced, More, Convert To Annotation

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1:7,897 | 75.2135296°W 40.0746532°N | Selected Features: 0

Attributes

Make a selection.

Select one or more features

Attributes | Geoprocessing

Current Progress

NG911 Progress Webmap

GETTING STARTED

Esri Trainings

- Training Seminar: Create and Share ArcGIS Pro Tasks
- Web Course: Automating Workflows Using ArcGIS Pro Tasks
- Video: ArcGIS Pro Tasks: An Introduction

www.esri.com/training

Thank you for your attention!

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