

Scenario 1: Data Editing and Maintenance

Task: Daily updates to the city's GIS database.

Objective: Ensure all spatial datasets are current, accurate, and maintain data integrity through regular updates and maintenance using ArcGIS Pro and enterprise geodatabases.

Step-by-Step Process:

1. Receiving and Reviewing Data Updates

- **Source of Data:** The data updates can come from various sources, such as field surveys, engineering departments, utility companies, or other city departments.
- **Review:** Carefully review the data to understand its format, accuracy, and completeness. Check for accompanying metadata or documentation that explains the data's source and attributes.

2. Preparing the Data for Integration

- **Data Format:** Ensure the data is in a compatible format for ArcGIS Pro (e.g., shapefiles, CSV files, CAD drawings).
- **Quality Check:** Perform a quality check to identify and rectify any errors or inconsistencies in the data. This may involve checking for missing attributes, verifying spatial accuracy, and ensuring the data adheres to the city's data standards.

3. Opening ArcGIS Pro and Accessing the Enterprise Geodatabase

- **ArcGIS Pro:** Open ArcGIS Pro and connect to the city's enterprise geodatabase.
- **Database Access:** Ensure you have the necessary permissions to edit the geodatabase.

4. Creating a Version for Editing (Versioning)

- **Version Creation:** Create a new version of the geodatabase to work in, which allows multiple users to edit the data simultaneously without interfering with each other's work.

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Catalog Pane > Databases > Right-click on the Geodatabase > Manage > Versions > New Version
```

- **Naming the Version:** Give the new version a descriptive name that reflects the update being made (e.g., `UtilityLines_Update_June2024`).

5. Loading and Integrating the New Data

- **Data Import:** Import the new data into the working version of the geodatabase.

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Analysis Tab > Tools > Data Management > Import > Import Features
```

- **Editing Environment:** Enter the editing environment to start making changes.

```
Edit Tab > Manage Edits > Start Editing
```

- **Attribute Mapping:** Map the attributes of the new data to match the existing schema of the geodatabase.

6. Applying Edits and Ensuring Data Integrity

- **Digitizing Features:** If the new data includes spatial features that need to be digitized (e.g., new utility lines), use the editing tools in ArcGIS Pro to digitize these features accurately.

Edit Tab > Create Features > Select Template > Draw the Feature

- **Attribute Editing:** Update the attributes of the existing features or add new attributes from the imported data.

Edit Tab > Attributes > Update Fields

- **Editing Rules:** Ensure any predefined editing rules (e.g., domain constraints, subtypes) are applied correctly during the update process.

7. Quality Assurance and Validation

- **Validation:** Run validation checks to ensure that the new data adheres to the spatial and attribute integrity rules.

Data Tab > Data Design > Attribute Rules > Validate

- **Topology Check:** Perform a topology check to ensure there are no spatial errors (e.g., overlapping polygons, disconnected lines).

Edit Tab > Validate Topology > Errors Pane

- **Review Changes:** Review all the changes in the version to ensure they are correct and complete.

8. Reconciling and Posting Changes

- **Reconcile:** Reconcile your version with the parent version to merge your changes.

Versioning Tab > Reconcile > Reconcile Against the Default Version

- **Conflict Resolution:** If there are conflicts, resolve them based on the city's conflict resolution policies.

Versioning Tab > Conflict Manager > Resolve Conflicts

- **Post:** Once reconciled, post the changes to the parent version to make them permanent.

Versioning Tab > Post > Post to Default Version

9. Documenting the Updates

- **Process Documentation:** Update the process documentation to reflect the changes made. This should include details on what data was updated, the sources of the data, any issues encountered, and how they were resolved.

Document updates in a shared repository or GIS management system.

- **Metadata:** Update the metadata for the datasets to ensure it accurately reflects the latest changes.

Metadata Tab > Update Metadata > Save

10. Communicating with Stakeholders

- **Notify:** Inform relevant stakeholders (e.g., GIS Manager, other departments) about the updates made to the GIS database.
- **Report:** Provide a brief report summarizing the updates, including any significant changes and their implications.

By following these steps, you ensure that the GIS data is accurate, up-to-date, and maintains its integrity, supporting the City of La Mesa's various departments in their decision-making processes and daily operations.