

Review of LAF Toolkit

In this assignment, you are tasked with creating a PowerPoint tutorial that demonstrates a detailed, step-by-step process for conducting analytic simulations or calculations of landscape benefits using a chosen Landscape Architecture Foundation (LAF) toolkit. Follow these guidelines:

1. Choose one tool from the LAF's Benefits Toolkit page: [Landscape Performance Benefits Toolkit](#). Alternatively, you may select a tool not listed on the LAF website.
2. Log your chosen tool in the shared Google Drive spreadsheet to avoid duplicates. Selections are on a first-come, first-served basis. There are some listed toolkits in the spreadsheet to choose.
3. Select a site that interests you and create a hypothetical development and design scenario. Use your chosen tool to input relevant values for this scenario.
4. Take screenshots at each stage of your process. Clearly highlight the input and output variables, along with their respective values, in these screenshots.

Final deliverables:

- **PDF Compilation:** Convert your PPT into a single PDF file and submit it through D2L.
- **Class Presentation:** Prepare for a 15-minute simulation presentation of your model during class, demonstrating its application and results.

Sensitivity Analysis

In this exercise, you are required to perform a **sensitivity analysis** using an application tool of your choice to identify which inputs have the greatest impact on the output and to comprehend the relationship between inputs and outputs. The requirements are as follows:

1. Select one benefit measurement tool of your interest. It can be one of LAF toolkits or not.
2. Identify the variables that are inputs to the model, and the variables that are output/results.
3. Select at least two numerical inputs to be tested (choose the inputs that would be most important or uncertain, or that likely have the greatest impact on the output).
4. Set the existing site condition as a baseline.
5. Specify the range of values for each input (e.g., $\pm 5\%$, $\pm 10\%$, and $\pm 15\%$ of the total area, for changes in impervious surfaces to compensate for the loss of forests).
6. Run the model multiple times, using different values of the selected inputs each time, while holding all other variables constant.
7. Analyze the results to see how the outputs (Y) change as inputs (X) change.
8. Visualize the relationship between X and Y using a bar or line graph.
9. Interpret the results to understand the relationships between inputs and outputs, and to identify which input has the greater impact on the outputs.

Final deliverables:

- A PDF report in letter size should be submitted via D2L

Evaluation rubrics:

	excellent	good	fair	poor	points
Completeness and depth of information on: Input and output variables/values for the selected toolkits under both baseline and alternative design scenarios					2
Interpretation of comparative results by scenario					2
Visualization and interpretation of the sensitivity analysis results					2
Limitations of the selected toolkits					2
Hierarchy of information presented (both visual and written information)					1
Completeness and clarity of information presented					1
Subtotal					/10

Precedent Study

In this assignment, each student will complete a precedent study based on existing Landscape Architecture Foundation (LAF) Case Study Investigations (CSI) or comparable landscape performance projects.

Students will select one topic from the scheduled precedent study themes. For the selected topic, each student shall give a 15-minute presentation in class that identifies and analyzes three relevant case studies. Please log your chosen tool in the shared Google Drive spreadsheet to avoid duplicates. Selections are on a first-come, first-served basis.

For each case study, students are expected to document:

- The project name and context
- The performance goal(s) addressed
- The performance metric(s) used
- The method(s) or tool(s) applied
- Key limitation or consideration related to the performance evaluation

Ecosystem Service Prediction using InVest

In this exercise, you will perform a comprehensive ecosystem service prediction using the InVEST model and evaluate the benefits of both the baseline and future land use scenarios in your area of interest. The spatial scale can be a community, city, region, or another relevant level. Overall, this exercise is designed to develop your skills in ecosystem service prediction and evaluation, as well as enhance your proficiency in using GIS tools and interpreting spatial data.

1. Find two LULC datasets from different years. Use the earlier-year data as the baseline land use scenario and the later-year data as the future land use scenario.

2. Employ at least two InVEST models to simulate the varying ecosystem services of your baseline and future land use scenarios.
3. Compile a summary table that outlines each model's input variables, data sources, and units.
4. Generate a summary table that displays each model's result statistics (units should be indicated).
5. Visualize and interpret the spatial results. Show the resultant GIS maps complete with a legend, unit, north arrow, and graphic scale.
6. Interpret each model's results

Final deliverables:

- A PDF report submitted to D2L.

Evaluation rubrics:

	excellent	good	fair	poor	points
Completeness and depth of information on:					2
• Overview of the study area selected					
• Description and map of baseline and future land use scenarios, looking at the changes of different land use type					2
• A summary table of models' input data					1
• A summary table of models' output data					1
• Visualization of the results					2
• Interpretation of the results					2
Subtotal					____/10

Final Project: Landscape Performance Assessment

Site: Glass City Metropark, Toledo, Ohio

Project Overview

The final project is a landscape performance assessment of Glass City Metropark. Students will evaluate how the park contributes to environmental sustainability, community well-being, and economic value. The project will follow the structure and methods used in the Landscape Architecture Foundation Case Study Investigation (CSI) program, which evaluates built landscape projects using measurable performance metrics.

Students will work collaboratively in small teams to analyze one category of landscape performance and produce a case study report and presentation. Students are supposed to work as a team to develop research questions. Each student must develop one landscape performance metric related to their group's focus area. Each metric must include either:

Option A – Measured Performance Result

Students calculate a performance outcome using available data sources such as GIS data, park documentation, public datasets, or LAF toolkit methods.

Examples:

- stormwater captured by green infrastructure
- carbon sequestration from planting information
- nearby property value change

Option B – Detailed Research Plan and Instrument

If full data collection is not feasible, students must develop a complete research design, including a data collection instrument.

Examples:

- visitor survey instrument
- behavioral observation protocol
- biodiversity survey method
- economic impact survey

The plan should be detailed enough that another researcher could implement the study directly.

Group Structure

Students will be assigned to three groups based on landscape performance categories.

Performance Category	Students
Environmental Performance	3 students
Social Performance	2 students
Economic Performance	2 students

Field Visit and Data Collection

The class will conduct a field visit to Glass City Metropark to gather initial observations and test data-collection methods. The purpose of the field visit is to help students refine their metrics and research instruments. During the visit, students may, but are not limited to:

- document park features
- conduct pilot observations of park users
- test survey questions
- record site photographs
- map environmental features

Final Deliverables

Each group will produce a CSI-style landscape performance case study report and deliver a 20-30-minute presentation, depending on the team size. Students should refer to past studies from the Landscape Architecture Foundation Case Study Investigation (CSI) program as examples for structure and formatting.

The written report should be formatted in letter size and clearly organized. The presentation should communicate the key findings and methods from the report.

Both the report and presentation should include the following sections related to your team's assigned performance category (Environmental, Social, or Economic):

- Project Goals and Design Intent – Key design goals and intended outcomes relevant to your performance category.
- Performance Questions – The research questions guiding your analysis.
- Methods and Metrics – The metrics selected and the methods used to calculate or evaluate them.
- Performance Findings – Results from calculations, analysis, or initial data collection. If results are not available, present a detailed research plan and instrument (e.g., survey or observation protocol).
- Limitations – Data limitations, methodological constraints, or uncertainties.
- Discussion and Implications – Interpretation of findings and implications for landscape design practice.
- References – Sources of data, literature, and tools used in the analysis.

Each student's assigned metric or research instrument could appear as a separate performance section in the report and presentation (as in the CSI report).

The final presentation should summarize the group's analysis, highlighting the performance questions, methods, results, or proposed research plans, and the broader implications for landscape architecture and landscape performance evaluation.

Rubric:

	excellent	good	fair	poor	points
Project Goals & Performance Questions					5
Methods and Metrics					5
Performance Findings or Research Plan					5
Limitations and Critical Reflection					5
Discussion and Implications for Practice					5
Communication Quality (Report)					5
Oral Presentation					5

Total Points: 35 points