



Scaling AI-Based Pavement Distress Detection for Network PSC

Transforming and GIS Integration Construction Ready Programs

Data Collection & Project Scale

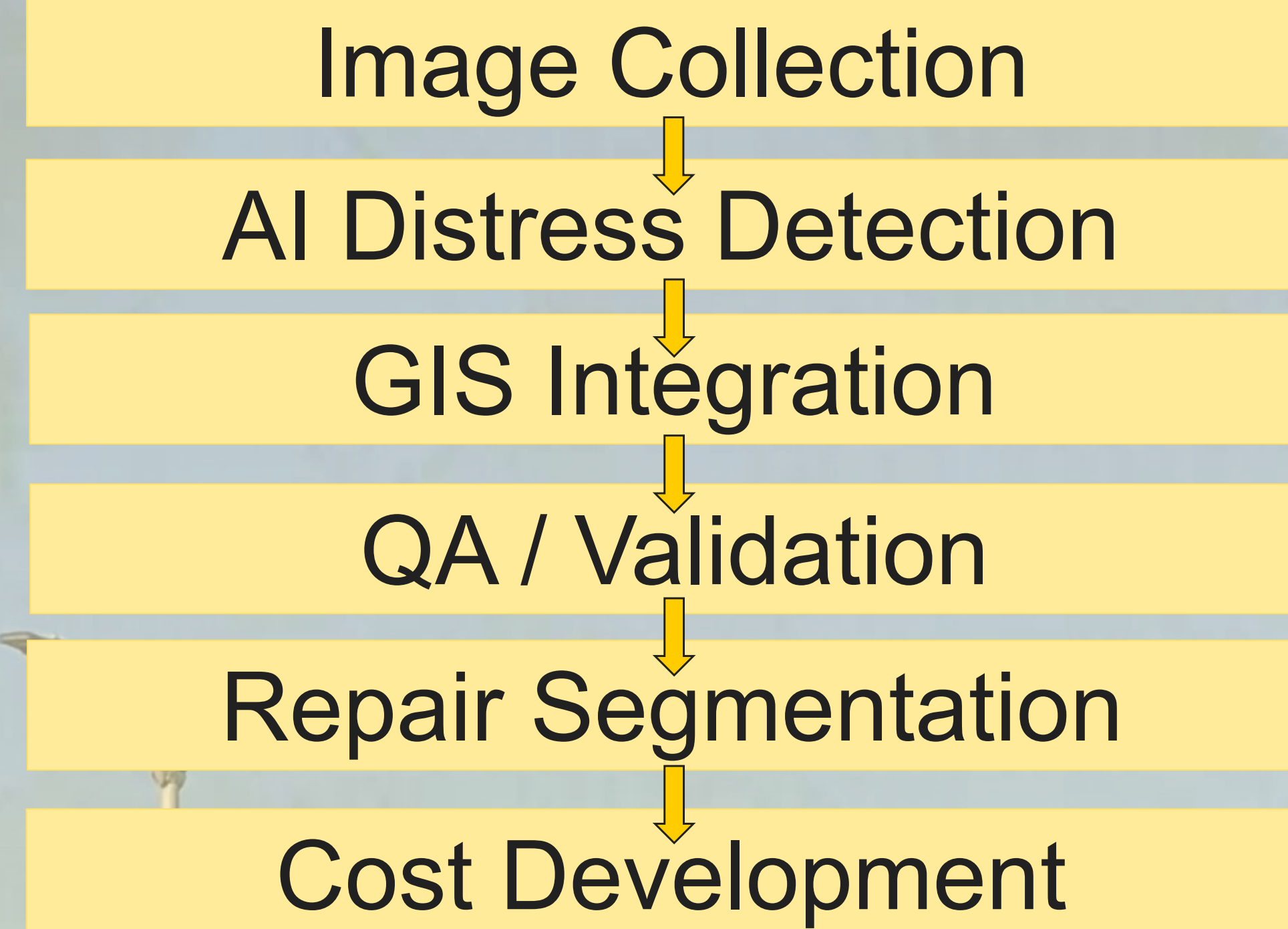
Penn State Pavement Network – 2026

- 14 Campuses
- 1,088 Pavement Assets
- 2,508,470 Square Yards
- 611 Road Segments
- 477 Parking Lots

Complete Network Survey



System Workflow



Highly detailed pavement distress data is increasingly available.

The challenge is not collection; it is translating data into decisions.

This work focuses on turning AI-generated outputs into:

- Repair quantities
- Cost estimates
- Project scopes
- Construction-ready programs

Under real-world constraints such as budget and phasing.



GIS Results & Project Impact

Why This Matters

Pavement surface data must support construction decisions.

Key Benefits:

- Faster network inspections
- Consistent defect classification
- Rapid repair scoping
- Cost estimation
- Construction-ready programs

GIS Integration

AI detections become spatial assets in GIS

Layers Include:

- Distress Type
- Severity
- Asset Boundaries
- Repair Segmentation