

# 2012 AASHTO GIS-T Symposium

## Automated Environmental Screening In the Planning Process

Frank DeSendi

# Agenda

- Background
- Linking Planning and NEPA Screening
- What's Next

# Background

- January 2010
- Nearly 100 Planning and DOT Staff
- So Much More

# Background

- National Environmental Policy Act (NEPA)
- Environmental Screening Early
- Federal Requirement

# Background

- PennDOT's GIS Database
  - ~50,530 Miles of Roadway
    - ~ 44,635 State Miles
  - ~42,390 Bridges & Structures
- Supports an Annual Program ~ \$2B

# Background

- Final Straws
  - No Consistent Process
  - 26 Projects = \$5 Billion (3/04)
  - Revenue Constraints
  - Rising Costs
  - Several Starts / Stops

# Background

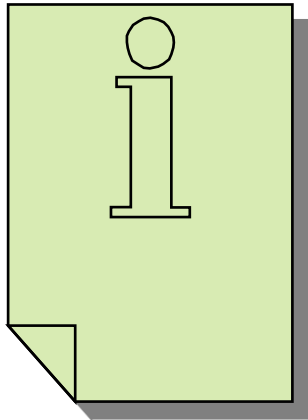
- Automation
  - Additional Work?
  - Notifications
  - Data
  - Environmental

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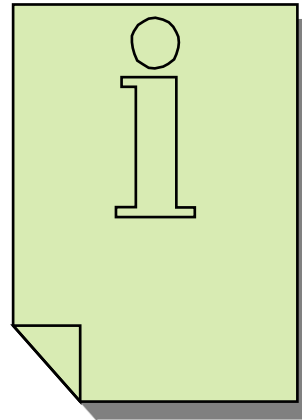
## Linking Planning and NEPA Process



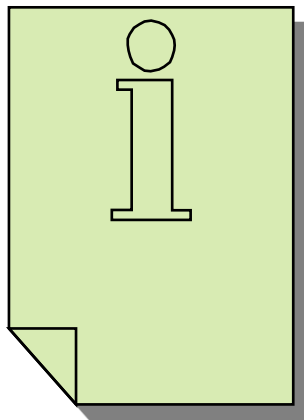
# LPN Process



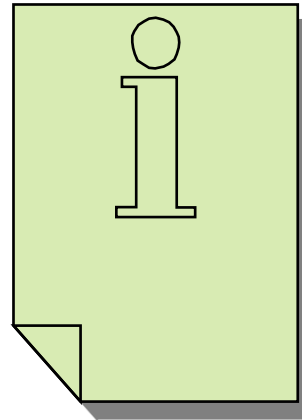
Level 1  
Stakeholders  
Local Problem



Level 2  
DOT/MPO/RPO  
Planning, Engineering,  
And Environmental



Asset Planning  
DOT/MPO/RPO  
Bridge/Road Rank



Level 3  
DOT/MPO/RPO  
Study Repository



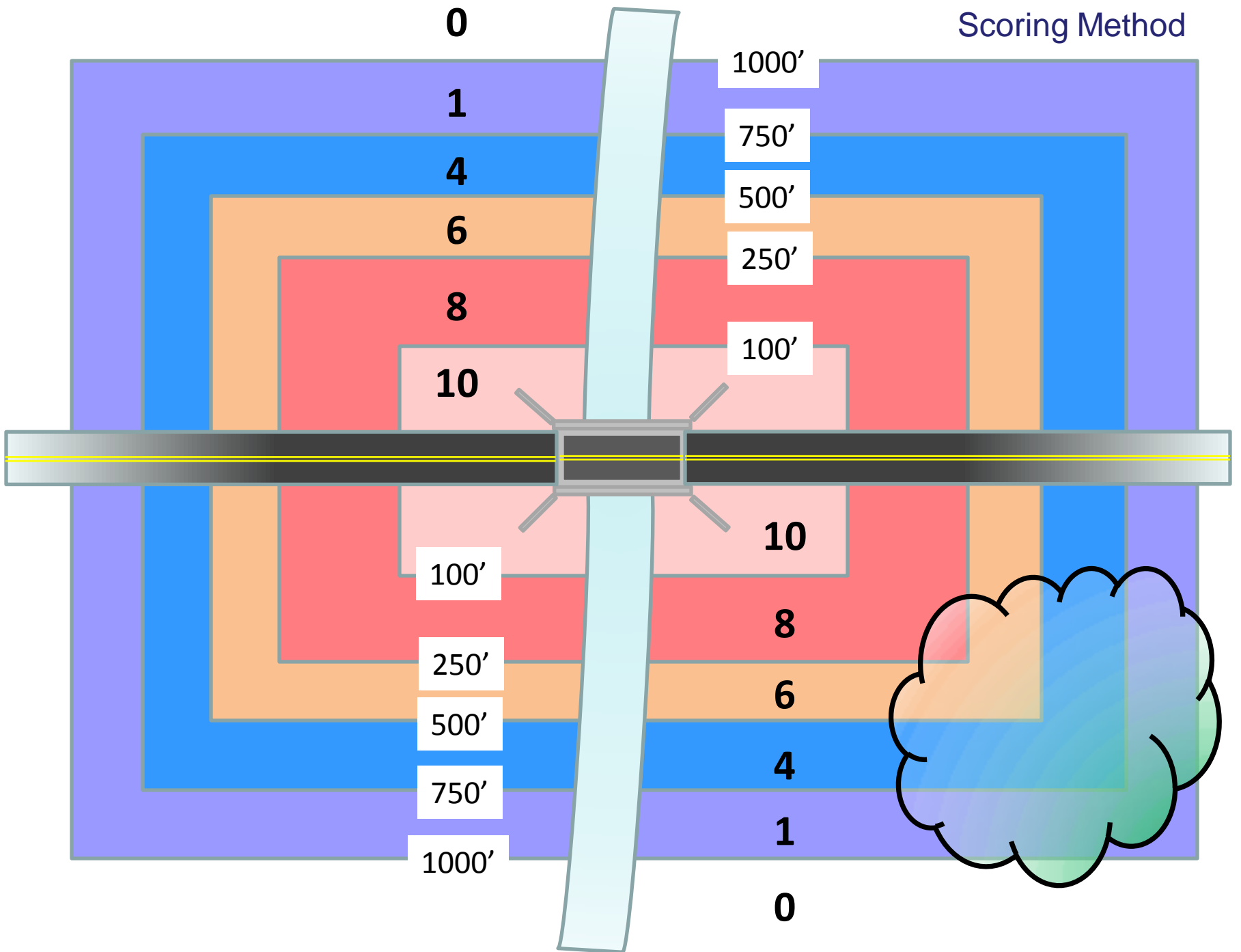
**pennsylvania**  
DEPARTMENT OF TRANSPORTATION

[www.dot.state.pa.us](http://www.dot.state.pa.us)

# 2012 AASHTO GIS-T Symposium

## Linking Planning and NEPA Environmental Screening

# Scoring Method



▼ 2.5 ENVIRONMENTAL

2.5.1 Resource Analysis			Detailed Score
Analysis	Score	Details (if any)	
2.5.1.a Potential for impacts to wild or stocked trout streams?	0		
2.5.1.b Potential for impacts to High Quality/EV Streams?	0		
2.5.1.c Potential for impacts to wetlands?	9	Due to the nature of this project, no impacts to wetlands is anticipated.	
2.5.1.d Potential for impacts to federally proposed, candidate, or listed; or state listed threatened endangered species?	0	No impacts are anticipated according to the PNDI Receipt for this project. The PNDI Receipt on 1/18/12 is valid for 1 year.	
2.5.1.e Potential for effects to Historic Properties or Archaeological Resources?	0		
2.5.1.f Potential public controversy on environmental grounds?	0	No potential public controversy for this project is anticipated.	
2.5.1.g Potential temporary or permanent impacts (use) to resources protected under Section 4(f)?	0		
2.5.1.h Potential temporary or permanent impacts to water trail?	0		
2.5.1.i Potential for temporary/permanent impacts to hazardous/residual waste site?	0		
2.5.1.j Potential impact to regulated floodplain within or beyond the project limits?	0		
2.5.1.k Potential impact to agriculture?	10	No permanent impacts to prime farmland soils and soils of statewide importance is anticipated.	
2.5.1.l Potential for impacts to navigable watercourses which requires U.S Coast Guard coordination?	0		
2.5.1.m Potential for impacts to properties afforded protection under Section 6(f) of the LWCF Act?	0		
2.5.1.n Are there properties in the vicinity of the project purchased as hazard mitigation lands under the Stafford Act?	0		
2.5.2 Comment on potential environmental impacts			
No potential environmental impacts are anticipated.			
2.5.3 Anticipated NEPA Class of Action			
Bridge and Roadway Programmatic Agreement Eligible? Yes			

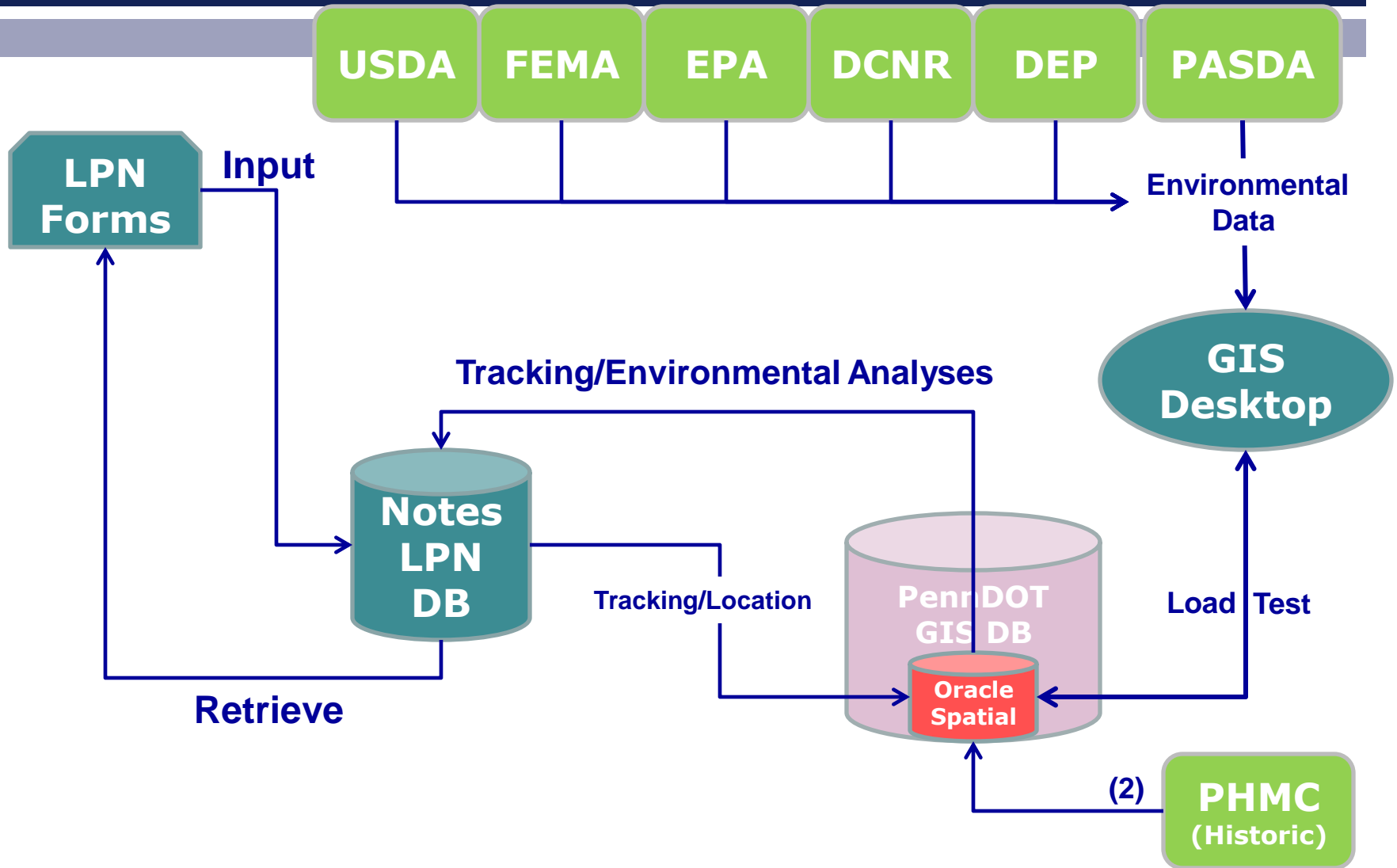
A value of null indicates a distance of one mile (5,280 feet) or more.

## Environment Results

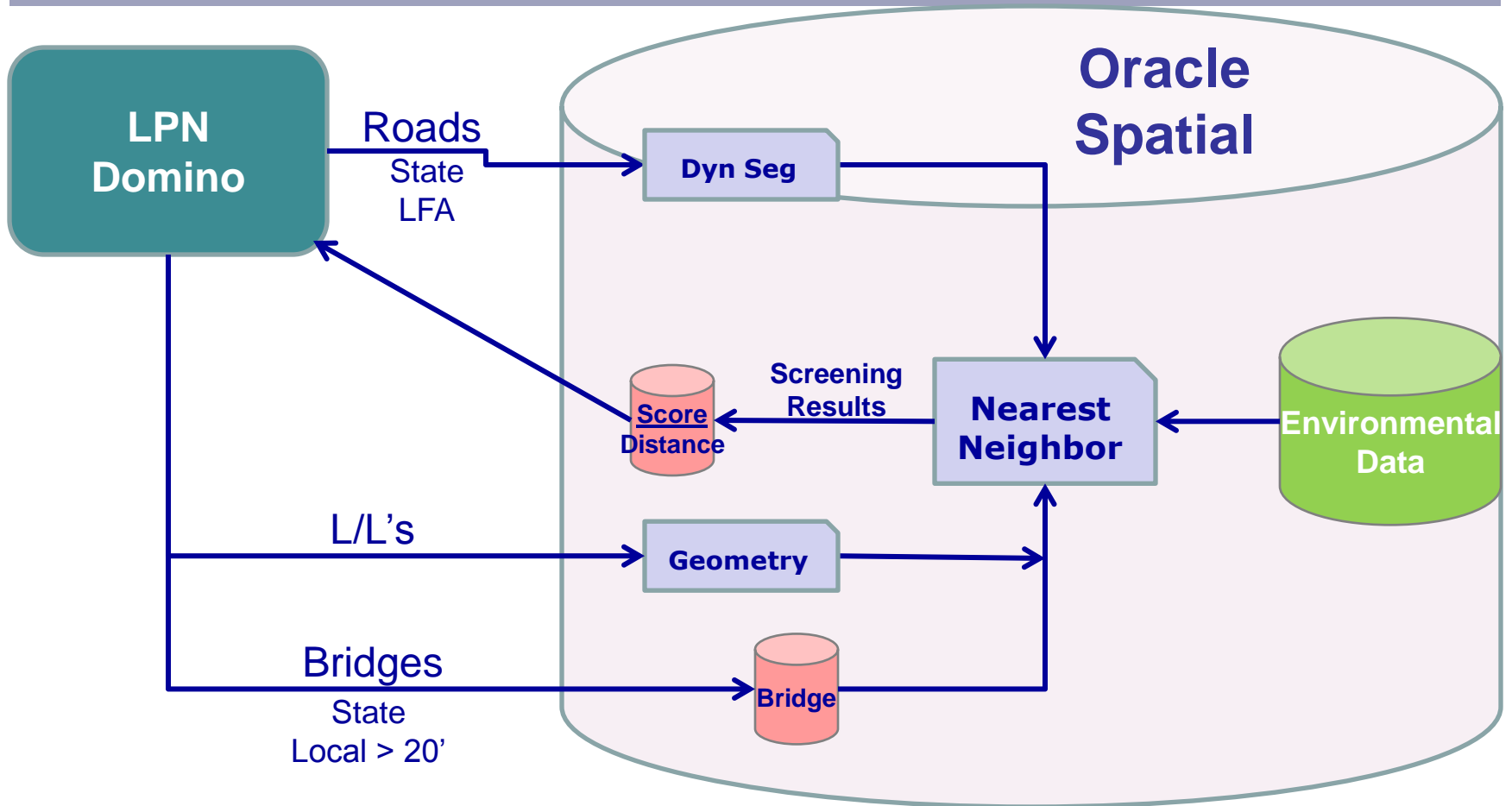
County Code	State Route	Start Segment	Start Segment Offset	End Segment	End Segment Offset	Bridge Key	Latitude	Longitude
16						10962		

ID	Description	Distance	Score	Updated Date
2	2.5.1.a - Class A, Wild Trout Streams	(null)	0	01/24/2012 12:14:31 PM
1	2.5.1.a - Stream Sections that Support Wild Trout Production	(null)	0	01/24/2012 12:14:31 PM
3	2.5.1.a - Wilderness Trout Streams	(null)	0	01/24/2012 12:14:31 PM
40	2.5.1.a - Chapter 93 Existing Use wild or stocked trout streams	(null)	0	01/24/2012 12:14:33 PM
4	2.5.1.b - Streams Chapter 93 Designated Use	(null)	0	01/24/2012 12:14:31 PM
41	2.5.1.b - Chapter 93 Existing Use High Quality / EV Streams	(null)	0	01/24/2012 12:14:33 PM
6	2.5.1.c - Hydric soils	12	9	01/24/2012 12:14:31 PM
5	2.5.1.c - National Wetlands Inventory for Pennsylvania - polygon	4692	0	01/24/2012 12:14:31 PM
9	2.5.1.e - Potential for effects to Archaeological Resources	(null)	0	01/24/2012 12:14:31 PM
8	2.5.1.e, 2.5.1.g - Potential for effects to Historic Properties	3287	0	01/24/2012 12:14:31 PM
13	2.5.1.g - Boundaries of State Parks in Pennsylvania	(null)	0	01/24/2012 12:14:32 PM
14	2.5.1.g - DCNR - State Forest Lands	(null)	0	01/24/2012 12:14:32 PM
12	2.5.1.g - Protected Lands Inventory: Federal Lands	(null)	0	01/24/2012 12:14:32 PM
15	2.5.1.g - State Game Lands	5140	0	01/24/2012 12:14:32 PM
11	2.5.1.g - Statewide Trails information from DCNR	(null)	0	01/24/2012 12:14:32 PM
16	2.5.1.h - PA Water Trails	(null)	0	01/24/2012 12:14:32 PM
19	2.5.1.i - Captive Hazardous Waste Operations	(null)	0	01/24/2012 12:14:32 PM
20	2.5.1.i - Commercial Hazardous Waste Operations	(null)	0	01/24/2012 12:14:32 PM
17	2.5.1.i - EPA GeoSpatial Data	(null)	0	01/24/2012 12:14:32 PM
18	2.5.1.i - Land Recycling Cleanup Locations	(null)	0	01/24/2012 12:14:32 PM
21	2.5.1.i - Municipal Waste Operations	(null)	0	01/24/2012 12:14:32 PM
22	2.5.1.i - Storage Tank Locations	(null)	0	01/24/2012 12:14:32 PM
24	2.5.1.j - **For all bridge projects with a regulated floodplain within 100 yards, the impact automatically defaults to 10.	(null)	0	01/24/2012 12:14:33 PM
23	2.5.1.j - 100-year floodplains (special flood hazard area)	(null)	0	01/24/2012 12:14:33 PM
26	2.5.1.k - Agricultural Easements	(null)	0	01/24/2012 12:14:33 PM
25	2.5.1.k - Prime farmland soils and soils of statewide importance	12	10	01/24/2012 12:14:33 PM
27	2.5.1.l - Navigable waters as determined by the U.S. Army Corps of Engineers	(null)	0	01/24/2012 12:14:33 PM
32	2.5.1.m - Property boundaries for lands acquired with LWCF money	(null)	0	01/24/2012 12:14:33 PM
33	2.5.1.m - point layer for development projects (e.g., playground equipment in a park) that use LWCF grants	(null)	0	01/24/2012 12:14:33 PM
39	2.5.1.n - FEMA / PEMA Unified Hazard Mitigation Assistance Program Properties	(null)	0	01/24/2012 12:14:33 PM
35	2.7.5 - Proposal in Act 167 Watershed	(null)	0	01/24/2012 12:14:33 PM

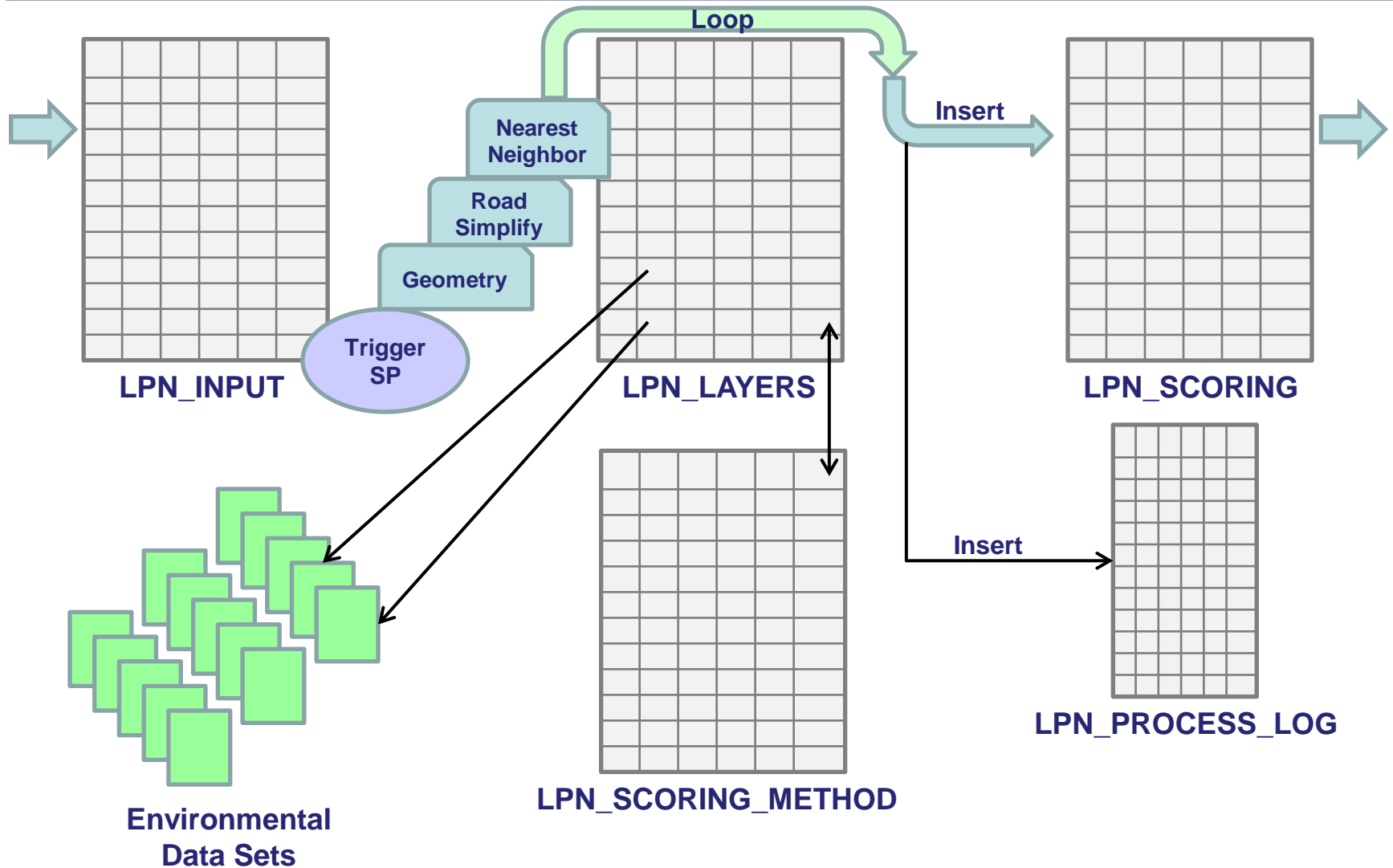
# LPN Environmental Processing



# PennDOT LPN Architecture



# PennDOT LPN Architecture





# Implementation

- Sudden Slowness
- Infrastructure Limitations
- Limiting Searches
- Line Cleaning
- System Test
- Batch

# Lessons Learned

- Domino
- Manual Screening Impractical
- Manage Expectations
- 30 or so Queries is a lot
- Testing Brings Confidence

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## What's Next

# What's Next

- Forms
- Data
- Mapping

# Data

- Data Sharing Strategy
- Environmental
- Other Applications
- Pre-Screening

# Data

- Data Strategy
- **Environmental**
- Other Applications
- Pre-Screening

# Data

- Data Strategy
- Environmental
- **Other Applications**
- Pre-Screening

# Data

- Data Strategy
- Environmental
- Other Applications
- **Pre-Screening**



# Mapping

1. Find Segments and Bridges
2. Populate locations on Levels 1 & 2
3. Level 2 and Environmental
4. Themed mapping of Levels 2 & 3
5. Aggregate for merging
6. Off Right of Way

# Conclusion

- Background
- LPN Screening
- What's Next

# 2012 AASHTO GIS-T Symposium

## Thank you:

Greg Ulp - CIBER/GeoDecisions  
Drew Ames – Hbg MPO/PennDOT  
Jianyang Shi – CAI/PennDOT  
Patrick Kielty – PennDOT  
Ray Menapace - PennDOT  
Mayura Chaudhari – Sysmind

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