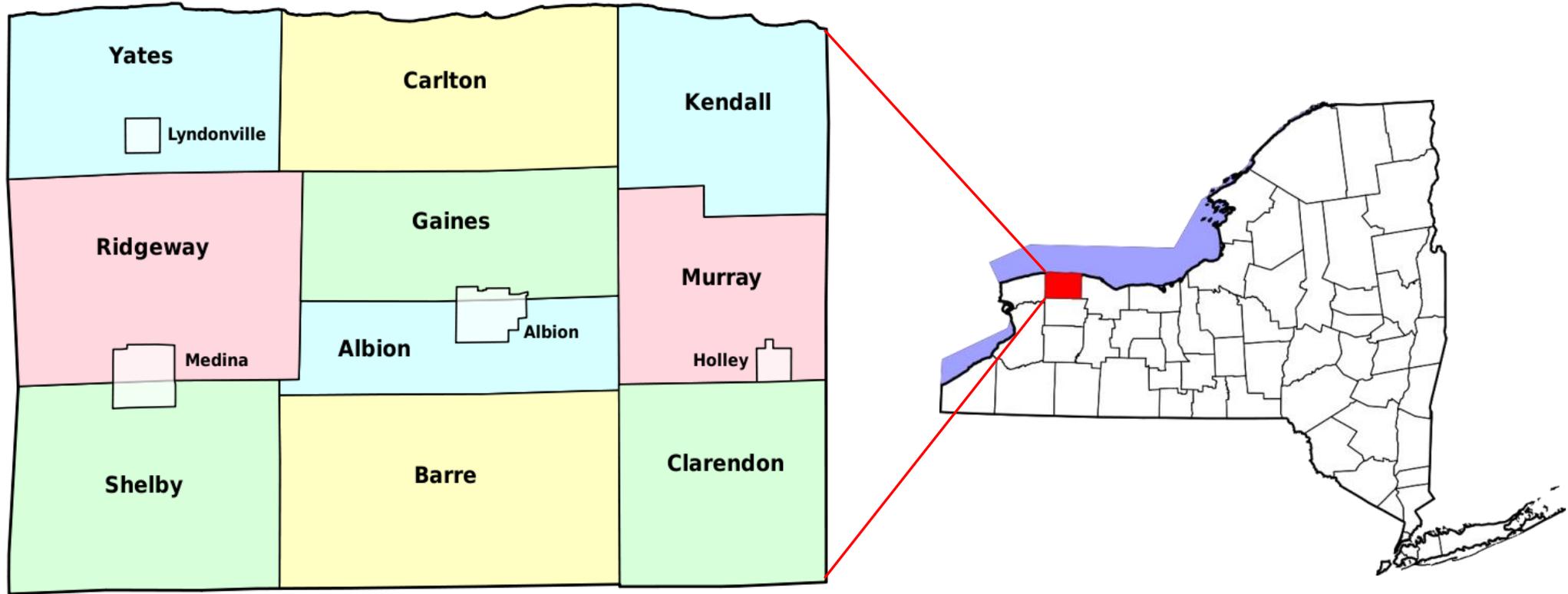




Developing & Executing a Bridge & Culvert Capital Improvement Plan

CASE STUDY: ORLEANS COUNTY, NY

WHERE IS ORLEANS COUNTY



NEED FOR PLAN

- No Bridge/Culvert Infrastructure Database
- Rely on NYSDOT BDIS (WinBOLTS) Database for Bridge Information
- No handle on Bridge/Culvert Infrastructure Needs
- Rely on NYSDOT Flags to indicate need for Bridge Repairs
- Limited funds in place to complete Repairs



WHAT DO WE DO



- Need to **UNDERSTAND** our Bridge/Culvert Inventory
- Need to **DEVELOP** a Bridge/Culvert Inventory Database
- Need to **EVALUATE** our Bridge/Culvert Infrastructure Needs
- Need to **DEVELOP** a Plan to address our Bridge/Culvert Infrastructure Needs
- Need to **FUND** the Plan
- Need to **EXECUTE** the Plan

WHERE DO WE START



- How do we develop an inventory database?
- How do we prioritize our infrastructure needs?
- What is the proper plan for addressing our infrastructure needs?
- Where do we get the funding for our plan?
- How do we go about executing our plan?

WHAT ARE WE WORKING WITH



- **Bridges**

- NYSDOT Inspection Reports
- Minimal Record Plans
- NYSDOT BDIS

- **Culverts**

- Nothing.....
- Unknown how many, where they are, what sizes, what materials, etc.
- Never been inspected
- No record plans or historical data

DEVELOPING THE INVENTORY



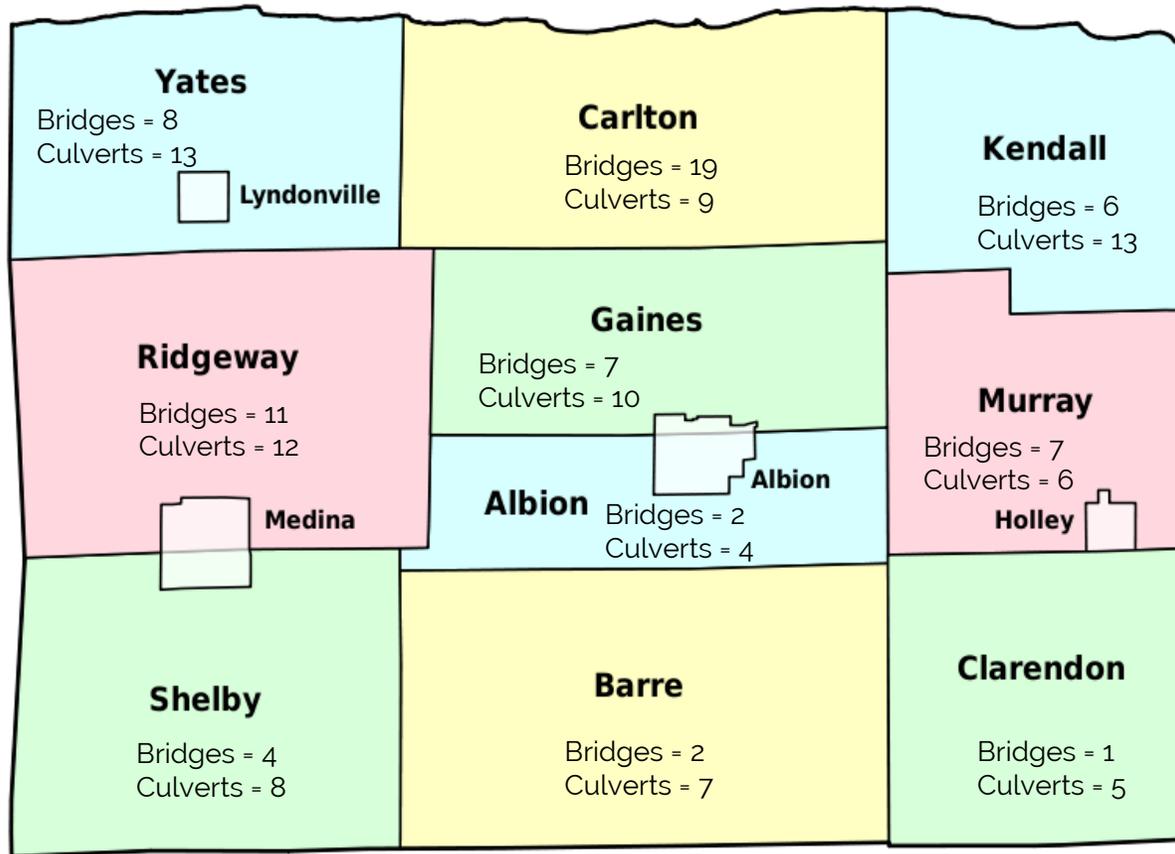
- **Bridges**

- Utilize NYSDOT BDIS & Inspection Reports
- Enter data into Asset Management Software Program
- Original program used was Cartegraph BRIDGEview.....migrating to a GIS Platform

- **Culverts**

- Drive County Roads to locate culverts
- Field measure each culvert structure
- Inspect each culvert structure
- Inventory all the field data.....Spreadsheets

WHAT DO WE HAVE



Rating Scale:
 7 = New Condition
 5 = Minor Deterioration
 3 = Serious Deterioration
 1 = Totally Deteriorated

- Own & Maintain 68 Bridges

2013	16 – Rating ≥ 6 (24%)
	18 – Rating = 5 (26%)
	28 – Rating = 4 (41%)
	6 – Rating < 4 (9%)

- Own & Maintain 87 Culverts (≥ 5' Diameter)

2015	0 – Rating ≥ 6 (12%)
	16 – Rating = 5 (18%)
	29 – Rating = 4 (33%)
	42 – Rating < 4 (37%)

EVALUATE THE INVENTORY



- **Bridge Inventory**

- Ran customized reports to sort inventory into the following categories:
 - Preventive Maintenance (Preservation)
 - Rehabilitation
 - Replacement
 - Decommissioning

- **Culverts**

- Sorted inventory utilizing spreadsheets into the following categories:
 - Preventive Maintenance (Preservation)
 - Rehabilitation
 - Replacement

EVALUATION RESULTS



- **Bridge Inventory**
 - 23 Preventive Maintenance
 - 4 Rehabilitation
 - 18 Replacement
 - 2 Decommission
- **Culverts**
 - 16 Preventive Maintenance
 - 29 Rehabilitation
 - 42 Replacement

WHAT WILL IT COST



- **Bridge Inventory – \$25M**
 - \$20M – Construction
 - \$2M – Design
 - \$3M – Construction Inspection

- **Culverts – \$25M**
 - \$10M – Construction
 - \$1M – Design
 - \$1.5M – Construction Inspection

DEVELOP A PLAN

- **Duration of the Plan**
 - Short-Term
 - Long-Term
- **In-House vs. Contractor (Both??)**
- **Funding Sources**
 - Local
 - State
 - Federal
- **Support from Legislature**



DEVELOP A PLAN

- Decision was made to develop a 5-year plan that brought them through 2017
- The plan was to include an aggressive locally funded program for bridge and culvert replacement due to the Federal focus on Preservation
- The plan will include the use of in-house resources to replace culverts
- All bridge work would be contracted out



DEVELOP A PLAN

- Created a list of Bridge and Culvert projects based on:
 - Preventive Maintenance
 - Rehabilitation
 - Replacement
 - Decommissioning
- Each project had a priority ranking
- Plan addressed top priority projects
- When additional funding became available, projects would be selected based on the priority ranking



FUNDING



- Through the 2011-2014 Transportation Improvement Program, the County received \$3.0M to replace one bridge structure and complete preventive maintenance repairs to another.
- Through the 2014-2017 Transportation Improvement Program, the County received \$0.5M to complete preventive maintenance repairs to six bridges.
- In 2014, the County bonded \$6.5M to replace six bridges and 10 culverts over a 3-4 year period.

FUNDING



- Through the 2017-2020 Transportation Improvement Program, the County received \$1.7M to complete preventive maintenance repairs to six bridges and decommission one bridge.
- In 2016, the County was awarded three BridgeNY projects:
 - \$2.3M to replace two bridges
 - \$0.64M to replace one culvert
- Under the 2018 BridgeNY program, the County applied for funding to replace two bridges and six culverts.

EXECUTION OF THE PLAN

- With full backing of the Legislature, the plan was executed.
- Some modifications to the plan were made based on available funding, actual cost for construction, etc.

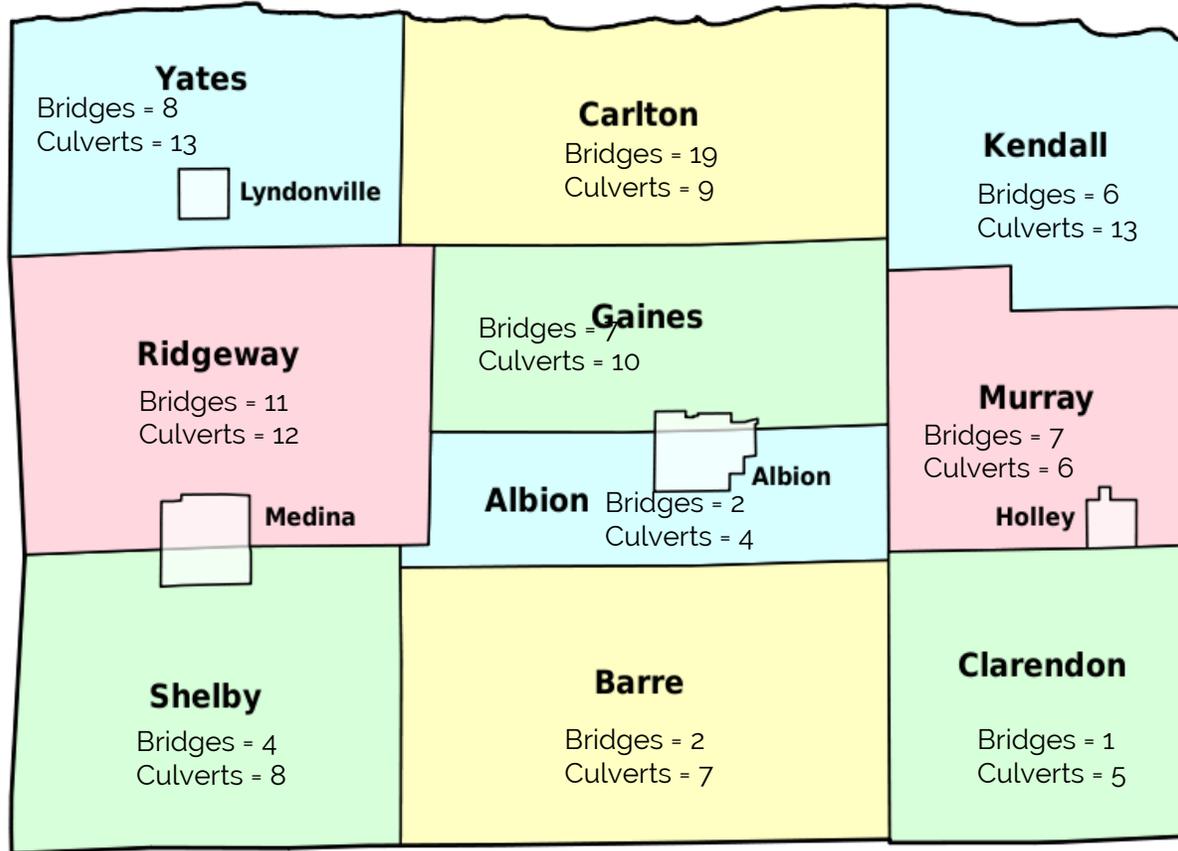


FULLY EXECUTED PLAN



- **Since 2011**
 - Replaced 9 Bridges
 - Performed Preventive Maintenance Repairs on 12 Bridges
 - Replaced 11 Culverts (6 completed with in-house forces)
 - Decommissioned 3 Bridges

WHAT DO WE HAVE NOW



Rating Scale:
 7 = New Condition
 5 = Minor Deterioration
 3 = Serious Deterioration
 1 = Totally Deteriorated

65

• Own & Maintain ~~68~~ Bridges

2013	16 – Rating ≥ 6 (24%)
	18 – Rating = 5 (26%)
	28 – Rating = 4 (41%)
	6 – Rating < 4 (9%)

2018	33 – Rating ≥ 6 (51%)
	11 – Rating = 5 (17%)
	17 – Rating = 4 (26%)
	4 – Rating < 4 (6%)

• Own & Maintain 87 Culverts (≥ 5' Diameter)

2015	0 – Rating ≥ 6 (0%)
	16 – Rating = 5 (18%)
	29 – Rating = 4 (33%)
	42 – Rating < 4 (49%)

2018	11 – Rating ≥ 6 (13%)
	16 – Rating = 5 (18%)
	29 – Rating = 4 (33%)
	31 – Rating < 4 (36%)

BRIDGE PRESERVATION



**ORLEANS
COUNTY**

Waterport Road

BRIDGE REPLACEMENT



**ORLEANS
COUNTY**

Hulberton Road

BRIDGE REPLACEMENT



**ORLEANS
COUNTY**

Carton Road

CULVERT REPLACEMENT



**ORLEANS
COUNTY**

Knowlesville
Road

CULVERT REPLACEMENT



**ORLEANS
COUNTY**

Oak Orchard
Road

CULVERT REPLACEMENT



**ORLEANS
COUNTY**

Culvert Road

