

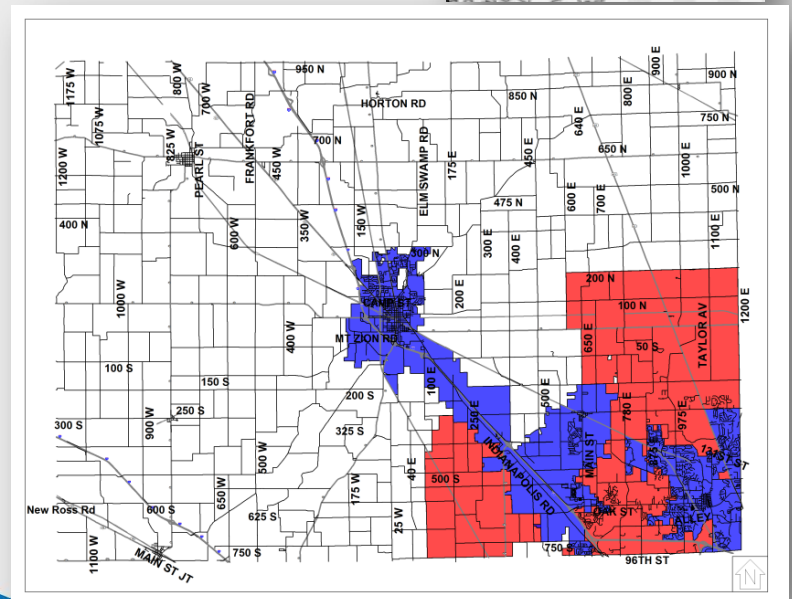


Implementing a Gravel Road Conversion Process

Craig Parks, PE - Boone County Engineer
Nick Parr - Operations Manager

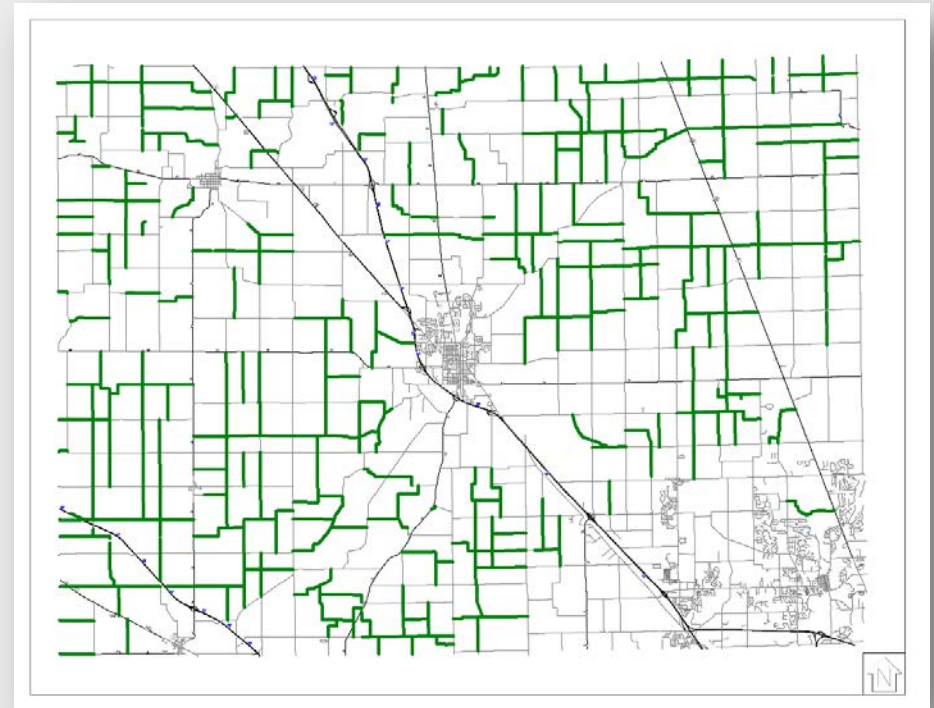
About Boone County

- 750 total centerline miles of roadway
- 300 small structures
- 192 bridges
- County population 58,000



Gravel Roads

- 420 Miles Paved Roads
- 330 Miles Gravel Roads



Public Opinion

“My Road is Nothing But Mud”

“This looks like a third world country”

“You are trying to kill me with the dust you are creating”



Why a Process?

- Promises made to residents not fulfilled
- No R/W
- No system to guide selection
- Short term fix = long term problem
- State road closure
- Funds not set aside
- We could never justify need to our Council

They were like...



We were like...



Goals

- Standardization
- Objectivity
- Transparency



Application Process

- One Application per segment
- Establish point person throughout the project
- Responsible for collecting petitions
- Creates base score for segment

BOONE COUNTY
Highway Department

**APPLICATION TO INITIATE THE CONVERSION
PROCESS ON A COUNTY HIGHWAY**

APPLICATION #: _____

Boone County Highway Department
1555 Indianapolis Ave
Lebanon, IN 46052

Requested Road to be Converted: _____

Between Roads: _____ and _____

Applicant's Name _____ and _____

Mailing Address _____ Date _____

City _____ State _____ Zip Code _____

Email _____ Phone # _____

Number of Parcel Owners on Segment	0	Number of Homes on Segment	0	Conversion Cost Estimate (roughly \$100,000 per mile)	\$ 0	Weight	Weighted Score
Cost of Conversion	<input type="radio"/> > \$500,000 (1)	<input type="radio"/> \$250,000 - \$499,999 (2)	<input type="radio"/> \$100,000 - \$249,999 (3)	<input type="radio"/> < \$100,000 (4)			
Traffic (Vehicles Per Day)	<input type="radio"/> 0-100 vpd (5)	<input type="radio"/> 101-300 vpd (1)	<input type="radio"/> 301-500 vpd (2)	<input type="radio"/> > 500 vpd (3)	5	0	
Termini	<input type="radio"/> Both ends gravel (6)	<input type="radio"/> One end gravel (1)	<input type="radio"/> Both ends paved (2)		10	0	
Thoroughfare Plan Classification	<input type="radio"/> Local road (1)	<input type="radio"/> Collector (1)	<input type="radio"/> Arterial (2)		15	0	
Connectivity	<input type="radio"/> Connects two Local Roads (6)	<input type="radio"/> Connects one State Road or Arterial with Local Road (1)	<input type="radio"/> Connects 2 State Roads or Arterials (2)		10	0	
Parallel to a State Road	<input type="radio"/> No (6)	<input type="radio"/> Yes, greater than 1 mile (1)	<input type="radio"/> Yes, within 1 mile (2)	<input type="radio"/> Yes, within 1/2 mile (3)	15	0	
Base Conversion Score =						10	0

Submitting this application does not guarantee that the requested roadway will be converted from gravel to hard surface. The County Highway Department in conjunction with the Boone County Board of Commissioners will review all applications received in a given year and prioritize based on the scores and available funds.

As the primary applicant, I agree to be the main point of contact with the Boone County Highway Department and to coordinate all activities associated with obtaining necessary documentation from area residents.

(Signature of Applicant)

(Date)

Base Score

- Based on 8 primary criteria
- Each criteria weighted
- 6 criteria based on roadway characteristics
- 2 criteria can vary and cause significant increase to base score

Roadway Name _____
 From: _____
 To: _____

Total Length: _____ Miles
 Cost = \$ _____

Criteria	Options	Scale	Score	Weight	Weighted Score
Cost of Conversion (Materials)	Greater than \$500,000	1		5	
	\$250,000 to \$500,000	2			
	\$100,000 to \$249,999	3			
	Less than \$100,000	4			
Traffic	0-100 vpd	0		10	
	101-300 vpd	1			
	301-500 vpd	2			
	> 500 vpd	3			
Termini	Both Ends Gravel	0		15	
	One End Paved	1			
	Both Ends Paved	2			
Thoroughfare Plan Classification	Local Road	0		10	
	Collector	1			
	Arterial	2			
Connectivity	Connects two Local Roads	0		15	
	Connects with one Collector with Local Road	1			
	Connects 2 Collectors	2			
	Connects one State Road or Arterial with Local Road	3			
	Connects one State Road or Arterial with Collector	4			
Public Support	< 50% signing petition	0		15	
	50%-75% signing petition	1			
	75%-99% signing petition	2			
	100% signing petition	3			
Right of Way	< 50% agree to dedicate to Thoroughfare width	0		20	
	50%-75% agree to dedicate to Thoroughfare width	1			
	75%-99% agree to dedicate to Thoroughfare width	2			
	100% agree to dedicate to Thoroughfare width	3			
	Thoroughfare Plan right of way already dedicated	3			
Parallel Route to a State Road	No	0		10	0
	Yes, greater than 1 mile	1			
	Yes, within 1 mile	2			
	Yes, within 1/2 mile	3			

Base Score =

Base Score

Roadway characteristics

Cost of Conversion

- 4 cost ranges
- Higher cost projects are scored lower
- Lowest weight of all criteria

	Scale	Score	Weight	Weighted Score
Greater than \$500,000	1		5	
\$250,000 to \$500,000	2			
\$100,000 to \$249,999	3			
Less than \$100,000	4			

Traffic

- Higher ADT equates higher score
- Traffic counts taken

	Scale	Score	Weight	Weighted Score
0-100 vpd	0		10	
101-300 vpd	1			
301-500 vpd	2			
> 500 vpd	3			

Base Score

Roadway characteristics

Termini

- Blacktop roads on each end receives higher value

	Scale	Score	Weight	Weighted Score
Both Ends Gravel	0		15	
One End Paved	1			
Both Ends Paved	2			

Thoroughfare Plan Classification

- Arterials, Collectors, Local Roads score in descending order

	Scale	Score	Weight	Weighted Score
Local Road	0		10	
Collector	1			
Arterial	2			

Base Score

Roadway characteristics

Connectivity

- The classification of the roads at each end of the segment have substantial impact to the score

	Scale	Score	Weight	Weighted Score
Connects two Local Roads	0		15	
Connects with one Collector with Local Road	1			
Connects 2 Collectors	2			
Connects one State Road or Arterial with Local Road	3			
Connects one State Road or Arterial with Collector	4			
Connects 2 State Roads or Arterials	5			

Parallel to State Road

- Parallel roads often used by detoured traffic

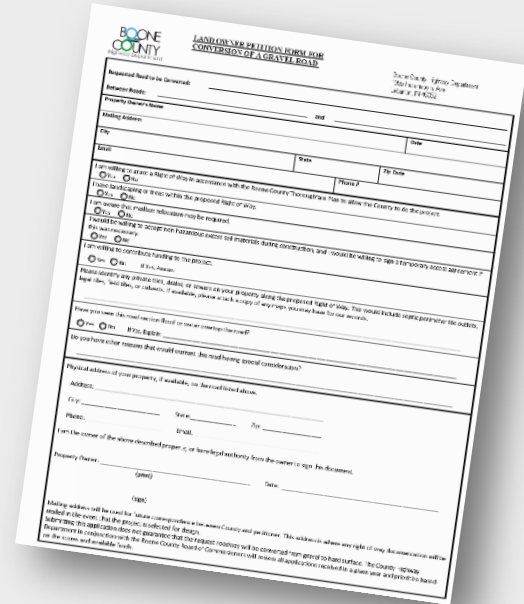
	Scale	Score	Weight	Weighted Score
No, or > 2 miles	0		10	0
Yes, > 1 mile < 2 miles	1			
Yes, within 1 mile	2			
Yes, within 1/2 mile	3			

Base Score

Criteria that can increase score

Public Support

- Percentage of parcel owners on the segment in support of the project
- Standard form for all petitioners
- Contact information for land owners



	Scale	Score	Weight	Weighted Score
< 50% signing petition	0		15	
50%-74% signing petition	1			
75%-99% signing petition	2			
100% signing petition	3			

Base Score

Criteria that can increase score

Right of Way

- Highest weighted score of all categories
- Percentage of parcel owners agreeable to dedication
- Score based on returned petitions
- Thoroughfare Plan is used to determine width of right of way

	Scale	Score	Weight	Weighted Score
< 50% agree to dedicate to Thoroughfare width	0		20	
50%-74% agree to dedicate to Thoroughfare width	1			
75%-99% agree to dedicate to Thoroughfare width	2			
100% agree to dedicate to Thoroughfare width	3			
Thoroughfare Plan right of way already dedicated	3			

Conversion Scoring

- Sum of the 8 weighted scores becomes the Base Score
- Score Adjustments
 1. Amount of Work Needed before Conversion
 2. Regularity of Maintenance Needed
 3. Included in the Department's Conversion Plan
 4. Private Financial Participation
- Score Adjustment is a multiplier

Roadway Name _____		Total Length: _____ Miles	
From: _____		Cost = \$ _____	
To: _____			

	Scale	Score	Weight	Weighted Score
Cost of Conversion (Materials)	Greater than \$500,000	1	5	
	\$250,000 to \$500,000	2		
	\$100,000 to \$250,000	3		
	Less than \$100,000	4		
Traffic	0-100 vpd	0	10	
	101-300 vpd	1		
	301-500 vpd	2		
	> 500 vpd	3		
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	50%-75% signing petition	1		
	75%-99% signing petition	2		
	100% signing petition	3		
Right of Way	< 50% agree to dedicate to Thoroughfare width	0	20	
	50%-75% agree to dedicate to Thoroughfare width	1		
	75%-99% agree to dedicate to Thoroughfare width	2		
	100% agree to dedicate to Thoroughfare width	3		
Parallel Route to a State Road	No	0	10	0
	Yes, greater than 1 mile	1		
	Yes, within 1 mile	2		
	Yes, within 1/2 mile	3		

Base Score =

Score Adjustments		Multiplier	
Base Multiplier			1
Amount of Work Needed Before Conversion	Major Work	0	
	Minor Work	1	
	Shovel Ready	1.5	
Regularity of Maintenance Needed (per BCHD staff)	Low	0	
	Medium	1	
	High	1.5	
Included in Highway Department's Conversion Plan?	If Yes, enter 1.5, Otherwise 0	0	
		1.5	
Private Financial Participation?	If yes enter the sum of 1 + percentage of private participation (i.e. if 25% participation, multiply base score by 1.25)		

Total Multiplier =

Adjusted Score =

Score Adjustments

Amount of Work Needed before Conversion

- Major (0)
- Minor (+1)
- Shovel Ready (+1.5)

		Multiplier
Major Work	0	
Minor Work	1	
Shovel Ready	1.5	

Score Adjustments

Regularity of Maintenance Needed

- Frequency of grading/material needed
- Frequency of requests for maintenance
- Staff is consulted and work order history is verified

		Multiplier
Low	0	
Medium	1	
High	1.5	

Already in the Plan

- List of roads identified by the Highway Department in 2016

		Multiplier
If Yes, enter 1.5, Otherwise 0	0	
	1.5	

Score Adjustments

Financial Participation

- Petitioners can agree to donate funds to the project to increase score
- Score based on percentage of project cost pledged

	Multiplier
If yes enter the sum of 1 + percentage of private participation (i.e. If 25% participation, multiply base score by 1.25)	

Score Adjustments

- Sum of multipliers becomes the total score adjustment
- Base score multiplied by total adjusted score to get the final overall score

Score Adjustments			Multiplier	
Base Multiplier				1
Amount of Work Needed Before Conversion	Major Work	0		
	Minor Work	1		
	Shovel Ready	1.5		
Regularity of Maintenance Needed (per BCHD staff)	Low			
	Medium			
		1.5		
Participation	Always enter the sum of 1 + percentage of private participation (i.e. If 25% participation, multiply base score by 1.25)			
Total Multiplier =			<input type="text"/>	
Adjusted Score =			<input type="text"/>	

(BASE SCORE) X (TOTAL ADJUSTMENT) = FINAL SCORE

Road Selection

Phase 1

Initial Budget
Established

January

Applications
Received

Traffic Counts

Preliminary
Scores
Tallied

Recommendation of
Selected Roads

Conditional
Commissioner
Approval

Preliminary
Results Provided
to Applicants

August

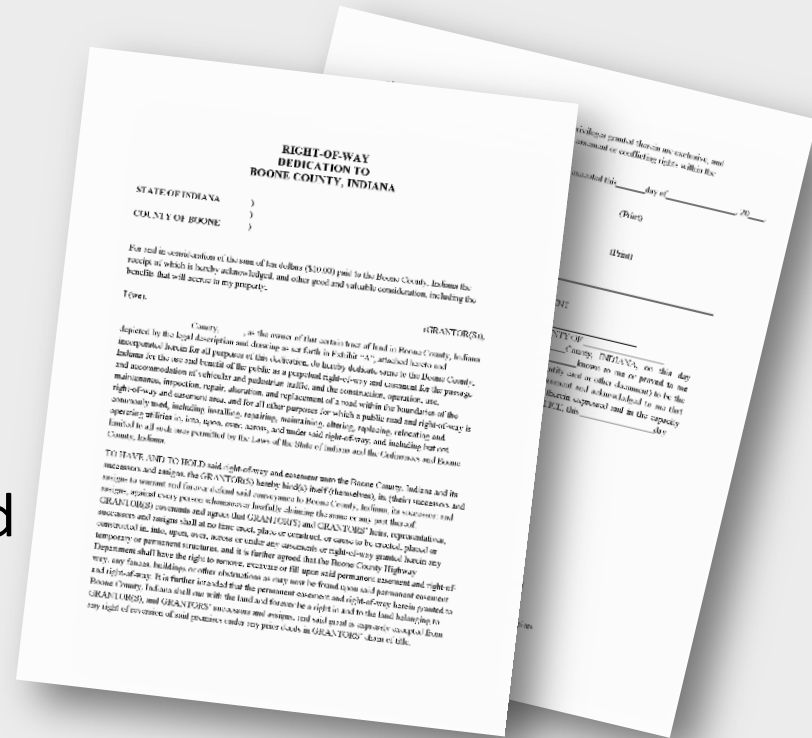
You have been selected!!



.....for petitioners to do what they agreed to do

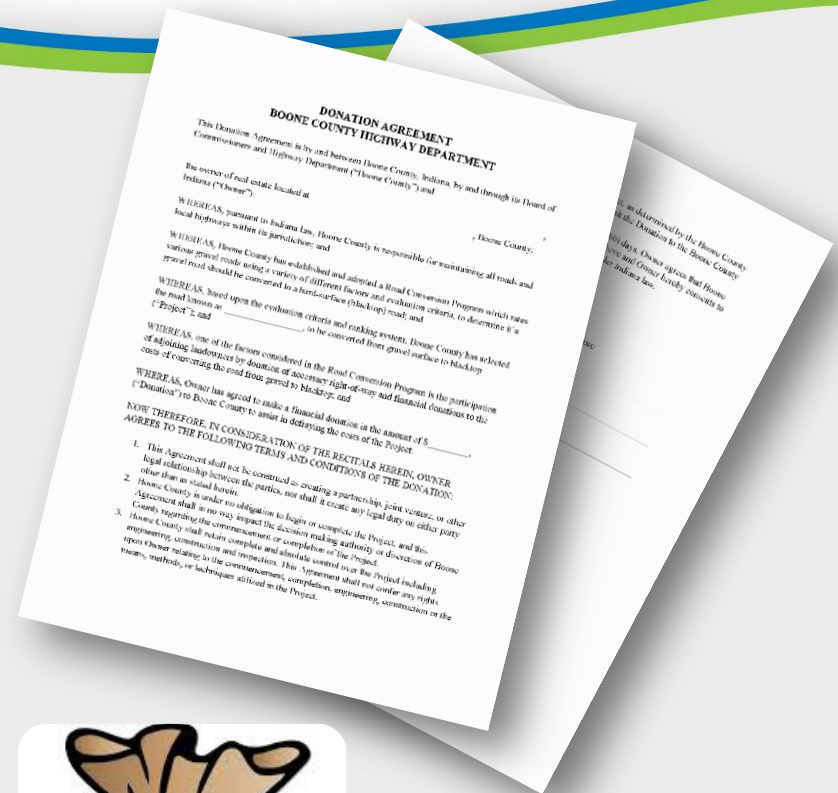
R/W Dedication

- Standard dedication documents
 - Legal description attached
- R/W dedication documents are provided to the applicant
- Applicant returns as a complete packet
- All documents must be notarized
- Recorded after Commissioner approval



Donation Agreement

- Petitioners who pledged funds initially receive agreement
- Must be notarized
- No payment until conversion is complete
- Scores are re-tallied



Road Selection

Phase 2

Title Research

August

**R/W Dedication &
Donation Agreements**

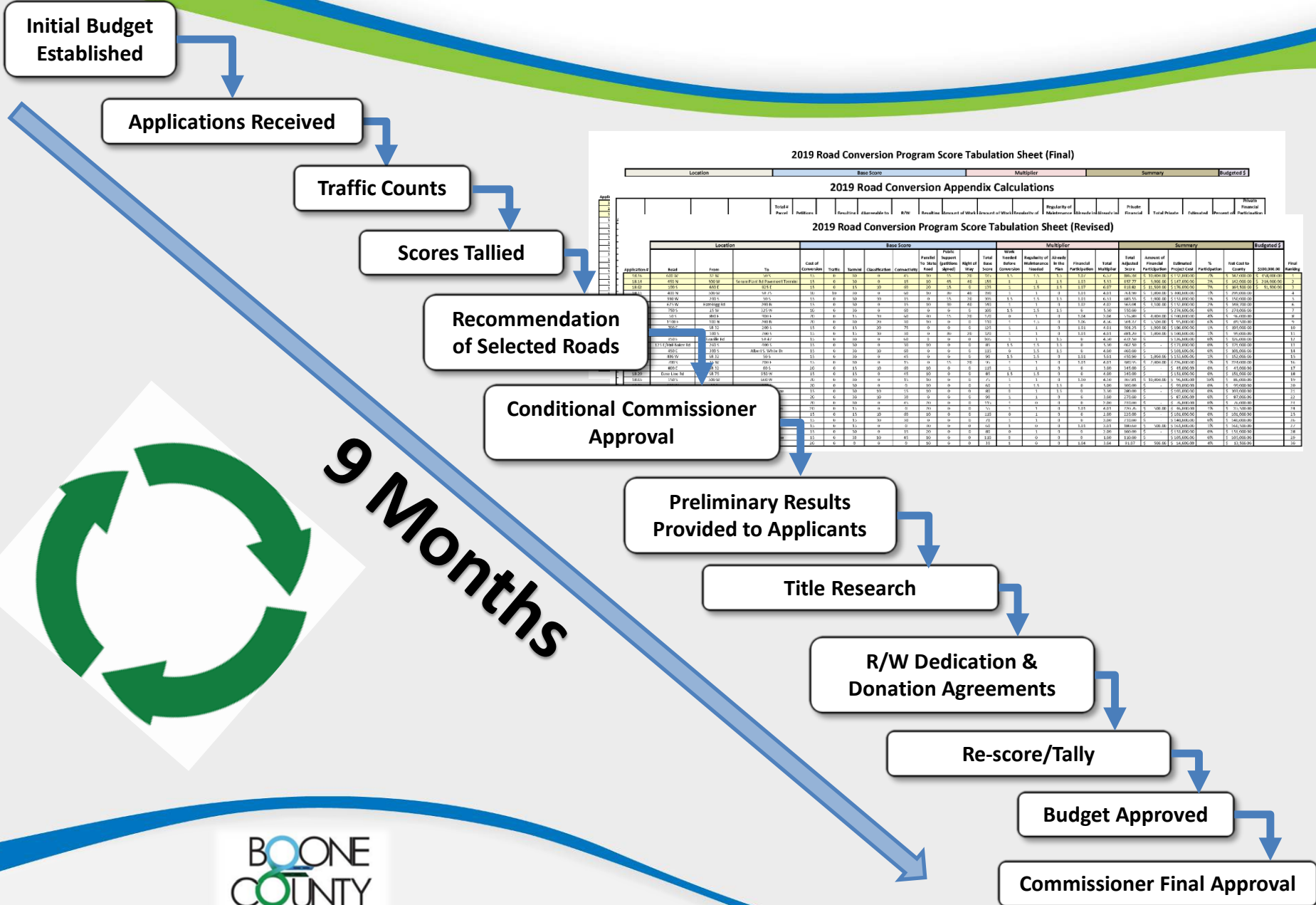
Re-score/Tally

**Budget
Approved**

**Commissioner
Final Approval**

February

Patience & Reiteration



2019 Road Conversion Program Score Tabulation Sheet (Final)

Location		Base Score	Multiplier	Summary	Budgeted \$
1813	455 W	100.0	1.0	100.0	1,000,000
1814	505 W	100.0	1.0	100.0	1,000,000
1815	505 W	100.0	1.0	100.0	1,000,000
1816	505 W	100.0	1.0	100.0	1,000,000
1817	505 W	100.0	1.0	100.0	1,000,000
1818	505 W	100.0	1.0	100.0	1,000,000
1819	505 W	100.0	1.0	100.0	1,000,000
1820	505 W	100.0	1.0	100.0	1,000,000
1821	505 W	100.0	1.0	100.0	1,000,000
1822	505 W	100.0	1.0	100.0	1,000,000
1823	505 W	100.0	1.0	100.0	1,000,000
1824	505 W	100.0	1.0	100.0	1,000,000
1825	505 W	100.0	1.0	100.0	1,000,000
1826	505 W	100.0	1.0	100.0	1,000,000
1827	505 W	100.0	1.0	100.0	1,000,000
1828	505 W	100.0	1.0	100.0	1,000,000
1829	505 W	100.0	1.0	100.0	1,000,000
1830	505 W	100.0	1.0	100.0	1,000,000

2019 Road Conversion Appendix Calculations

Project	Location	Base Score	Multiplier	Summary	Budgeted \$
1813	455 W	100.0	1.0	100.0	1,000,000
1814	505 W	100.0	1.0	100.0	1,000,000
1815	505 W	100.0	1.0	100.0	1,000,000
1816	505 W	100.0	1.0	100.0	1,000,000
1817	505 W	100.0	1.0	100.0	1,000,000
1818	505 W	100.0	1.0	100.0	1,000,000
1819	505 W	100.0	1.0	100.0	1,000,000
1820	505 W	100.0	1.0	100.0	1,000,000
1821	505 W	100.0	1.0	100.0	1,000,000
1822	505 W	100.0	1.0	100.0	1,000,000
1823	505 W	100.0	1.0	100.0	1,000,000
1824	505 W	100.0	1.0	100.0	1,000,000
1825	505 W	100.0	1.0	100.0	1,000,000
1826	505 W	100.0	1.0	100.0	1,000,000
1827	505 W	100.0	1.0	100.0	1,000,000
1828	505 W	100.0	1.0	100.0	1,000,000
1829	505 W	100.0	1.0	100.0	1,000,000
1830	505 W	100.0	1.0	100.0	1,000,000

Construction Process

Road Preparation

- Brush cleared
- Drainage work performed
- Grade & slope improvements



Construction Process

Chemically Modified Asphalt (CMA)

- Prime applied to gravel surface
- Single 4" lift
- Asphalt properties
 - 50/50 Mix of #9 & #11 limestone
 - 10 Gal/Ton CM-150
- Open graded
- Flexible base layer



Construction Process

Surface Finishing

- “Choke” is applied
 - #13 Aggregate broadcasted to prevent tracking
- 2’ Stone shoulder
- Single Chip & Seal following year



2019 Results

- 30 Applications
- \$22,500 pledged
- 40 Parcels dedicated R/W
 - Typical 40' width
 - Documents recorded
- 5 miles converted



Lessons Learned

- Process is complicated
- Involvement of applicant needs to change
- Application needs to change
- Base score should be calculated by the department
- We met our goals
 - Process is standardized
 - Process is objective
 - Process is transparent (defendable)





Questions?