

2022 Delaware County Engineer Annual Township Meeting

November 16, 2022

2022 Annual Township Meeting



County Engineer
DELAWARE
COUNTY *Ohio*

Agenda

11:00 Registration

11:15 Lunch Provided

11:30 Pledge, Introduction & Elected Official Welcome

11:45 County Engineer's Presentation (Part 1)

12:15 Break

12:25 County Engineer's Presentation (Part 2)

12:50 Questions and General Discussion

1:00 Adjourn

2022 Annual Township Meeting



County Engineer
DELAWARE
COUNTY *Ohio*

What's New

New County Office Campus
ODOT Route 23 Connect Study
County Engineer Support for Townships
Pavement Marking Retroreflectivity Requirement
Intel Project

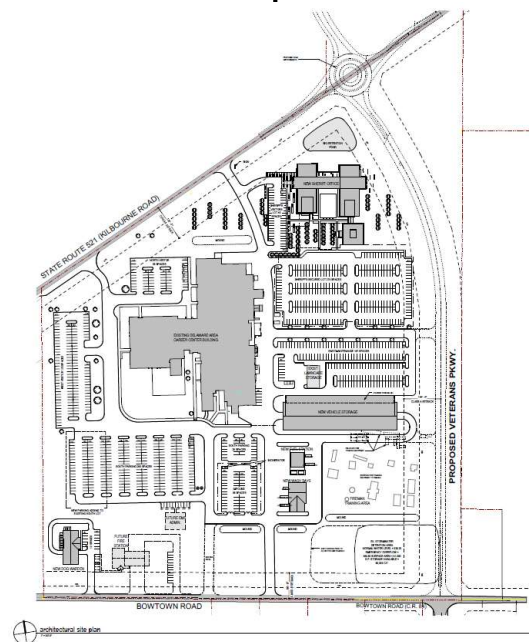


New County Office Campus

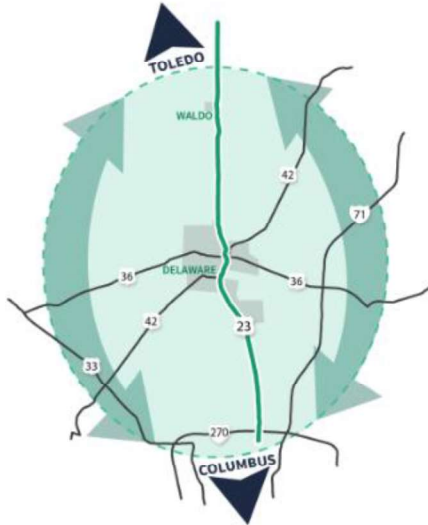
The new Byxbe Campus at the old DACC North Campus.

Move-in planned for July 2023:

- County Engineer
- Regional Sewer District (Sanitary)
- Building Safety (Code Compliance)
- Regional Planning
- Soil and Water Conservation District
- OSU Extension Office
- County Sheriff



ODOT Route 23 Connect Study



After comparison of the expected benefits and costs for each Phase 1 concept, we have determined none of the concepts as presented can be reasonably implemented. The concepts presented would cost at least three times more than the benefits it would provide and each of the proposed concepts would substantially impact community and natural resources.

Instead, the study is shifting its focus to planning and implementing a series of stand-alone improvement projects along the existing U.S. 23 corridor between Waldo and I-270. The next phase of the study will inform an action plan that recommends and prioritizes specific projects along U.S. 23 to provide safer and more efficient travel, including increased travel time reliability for through traffic.

ODOT Route 23 Connect Study

Next Steps:

1. ODOT will soon begin studying US 23 from Hills-Miller Road to SR 229
2. Potential to upgrade this section to a freeway with interchanges at certain intersections, including SR 229

Future Steps:

1. ODOT will begin taking feedback on ideas to upgrade US 23 from City of Delaware south to Franklin County
2. Potential to widen certain segments
3. Potential to remove some traffic signals
4. Potential to add RCUT's (Restricted Crossing U-Turn) to supplement access at non-signalized intersections

County Engineer Support for Townships

Request for Engineering Assistance (REA)
Roadway Grant Assistance Program (RGAP)
Road Salt and Cooperative Purchasing Contracts
Annual Road Improvement Program



County Engineer Duties

O.R.C. § 5543.01 General Powers and Duties of Engineer

County Engineer shall have general charge of...

- Construction, reconstruction, resurfacing or improvement of roads by **boards of township trustees**

County Engineer shall supervise the construction, reconstruction, resurfacing and improvement of...

- Public roads by **boards of trustees** under 5571.01, 5571.06, 5571.07, 5571.15, 5573.01 to 5.73.15, 5575.02 to 5575.09, and 5577.01.



Request for Engineering Assistance

Form REA
 (Revised November 2014)
 Page 1

OFFICE USE ONLY
 # _____

REQUEST FOR ENGINEERING ASSISTANCE



Delaware County Engineer's Office
 50 Channing Street
 Delaware, Ohio 43015

Date: _____ Township: _____

The Board of Township Trustees hereby requests the County Engineer's engineering assistance as follows:

Road Name: _____ Road #: _____

Location: _____ miles _____ N _____ S _____ E _____ W _____ of _____ (nearest intersection)

or address # _____ or between _____ and _____ (roads).

ROADWAY/TRAFFIC SAFETY:

- Speed limit study
- Intersection traffic study
- Sight distance study
- Guardrail or barrier study

ROADWAY PLANNING AND MAINTENANCE:

- Pavement resurfacing or repair (attach road list)
- Roadway widening or other improvement study
- Sidewalk or curb ramp study
- OPWC funding application

CULVERTS:

- Culvert safety inspection
- Culvert hydraulic analysis (pipe sizing)
- Force-account estimate
- County construction of township culvert

DITCH/DRAINAGE:

- Ditch maintenance or cleanout

OTHER (describe below)

Include a brief description of what the Township is requesting. If there are multiple locations, list them below:

County Engineer is asked to respond to the following person who will be the point of contact in reference to this request:

Name _____ Title _____

Address _____ City _____ Zip _____

Phone _____ Fax or email _____

Township Trustee _____ Date _____

Township Trustee _____ Date _____

Township Trustee _____ Date _____

Township Administrator* _____ Date _____

A minimum of two Trustee signatures is required.
 * A copy of resolution requesting engineering assistance by the Board along with this form signed by Township Administrator is acceptable.

Mail, email or fax the signed and completed form to:
 Delaware County Engineer's Office
 Attn: Doug Riedel, P.E.
 50 Channing Street
 Delaware, OH 43015
 Fax: 740-853-2399
 Email: droedel@co.delaware.oh.us

See instructions on the following pages for more information

Please submit a Request for Engineering Assistance (REA) form to Doug Riedel

Form signed by majority of board of trustees

-or-

Signed by Township Administrator with consent of majority of board of trustees



Roadway Grant Assistance Program

Roadway Grant Enhancement Program (RGAP) established by the County Commissioners September 9, 2019

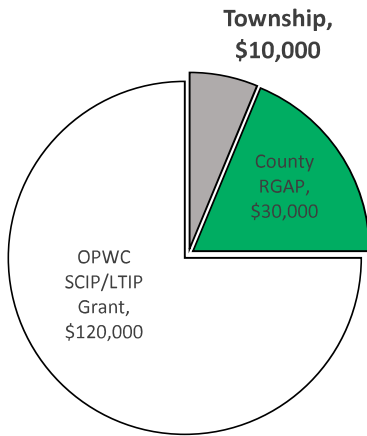
3:1 match for local contribution by city, village or township with majority of its population in Delaware County

RGAP grants are capped at **\$150,000 per agency, per year**

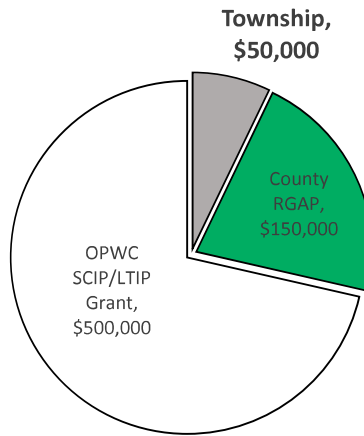


Roadway Grant Assistance Program

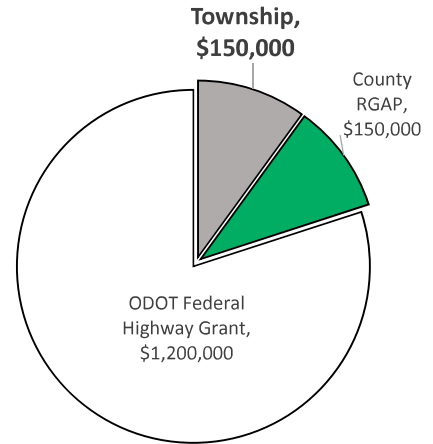
Example 1:
\$160,000 resurfacing project



Example 2:
\$700,000 reconstruction project



Example 3:
\$1.5 million road widening



Road Salt

Salt prices for townships through April 2023:

Salt	\$67.74 per ton
SG21 (2/1 salt/grit)	\$55.08 per ton
SG11 (1/1 salt/grit)	\$48.63 per ton
Brine	\$0.24 per gallon

Current supplier: Cargill

10,000+ tons in county inventory as of November 15, 2022

Delaware – US Route 42 North	4,000+ tons
Berkshire Township – Rome Corners	3,000+ tons
Liberty Township – Sawmill Parkway	3,000+ tons

County under contract through ODOT to purchase **10,000 additional tons** this winter



Break Time



Pavement Marking Retroreflectivity

New Federal Rule for Markings
Pavement Marking Requirements
Marking Options
Sample Maintenance Plan



New Federal Rule for Markings

New federal requirements on pavement marking retroreflectivity

Retroreflectivity = amount of light reflected back to driver

By 2026, all road maintenance agencies must have a **method in place** to manage pavement markings

Options:

1. Measure reflectivity (time consuming and expensive)
2. Systematic replacement (more manageable)



Pavement Marking Requirements

Federal Manual on Uniform Traffic Control Devices (MUTCD) updated September 6, 2022 to add requirements relating to pavement marking retroreflectivity.

Minimum retroreflectivity of 50 mcd/m²/lx must be maintained for the following:

- Edge lines, center lines and channelizing lines
 - Transverse markings, arrows, words, symbols, crosswalk lines are not included
- On roads with speed limit **35 mph and over**
- On roads with ADT of **6,000 vehicles per day** or more



Pavement Marking Requirements

So what does all of this mean:

1. You need to have a **plan in place** to maintain your markings on these roads before September 2026.
2. How are you going to do it?
 - Measure retroreflectivity of all markings and replace as needed; or
 - Systematic replacement based on estimated lifespan of markings?
3. DCEO advises a systematic replacement schedule based on the estimated lifespan of the markings.
 - What you lose in possibly replacing a marking “too early” is offset by not having the added expense of annual monitoring



Marking Options

Item 642 – Traffic Paint

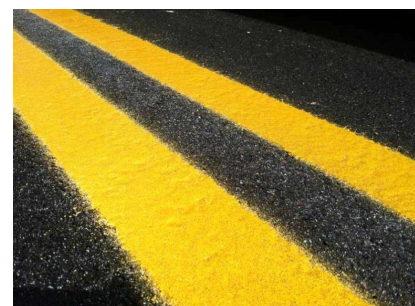
- Cheapest
- Shortest life span

Item 644 – Thermoplastic (Extruded)

- Most expensive
- Longest life span
- Marking outlasts the retroreflectivity

Item 648 – Spray Thermoplastic

- Costs more than paint
- Lasts a little longer than paint



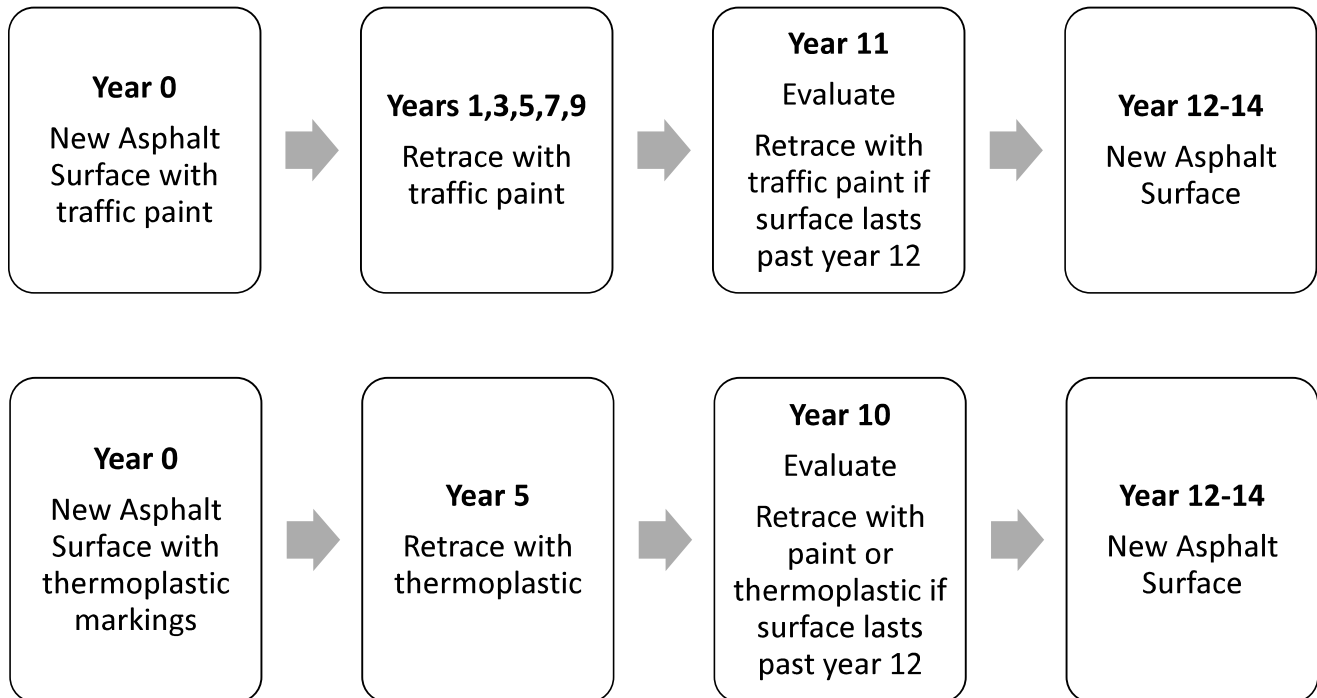
Marking Options

Marking Type	Estimated Life on Brand New Pavement (years)	Estimated Life on Older Pavement (years)	Centerline Price Per Mile
Item 642 Traffic Paint	1	2	\$1,050 – 1,150
Item 644 Thermoplastic	5	5	\$5,800 – 6,400
Item 648 Spray Thermoplastic	2-3	3	\$1,800 – 2,000

Marking Type	# Applications in 12 Years	Centerline Mile Cost for 12 Years
Item 642 Traffic Paint	7	\$7,350 – 8,050
Item 644 Thermoplastic	3	\$17,400 – 19,200
Item 648 Spray Thermoplastic	5	\$9,000 – 10,000



Sample Maintenance Plan

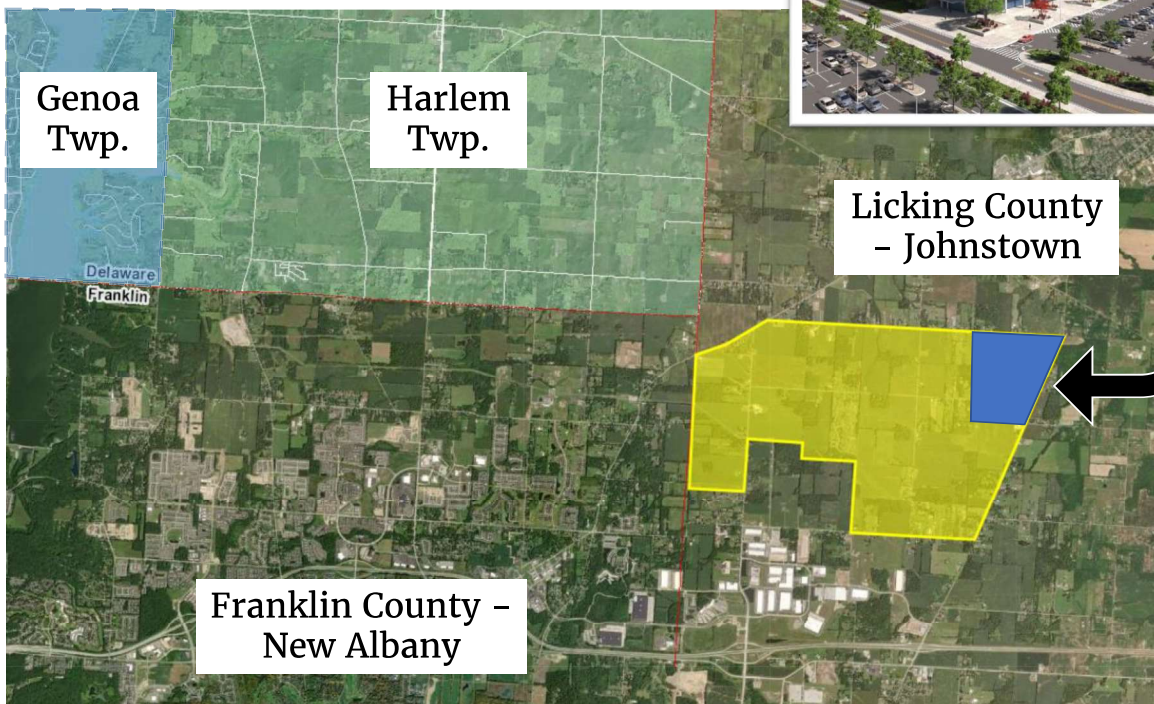


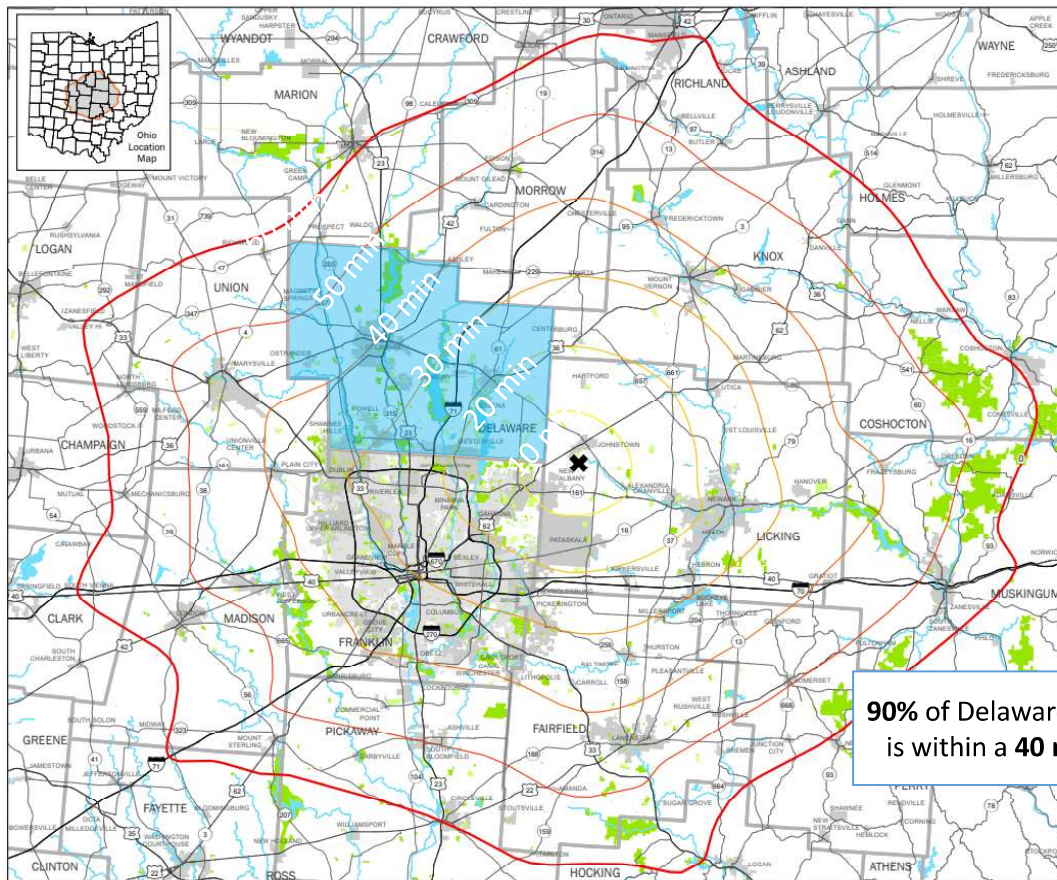
Intel Project

Intel Manufacturing Site
Effect on Delaware County



Intel Manufacturing Site

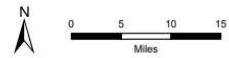




Intel Site Driving Times

- ✕ Intel Site
- Travel Time in minutes
- 60
- 50
- 40
- 30
- 20
- 10
- Park/Open Space

Note:
Travel assumed by car.
Travel times are approximate from Intel site out at 5pm.
Buffers generated using ESRI Network.



90% of Delaware County's population is within a 40 minute drive of Intel



The information shown on this map is compiled from various sources made available to us which we believe to be reliable.
N:\ArcGIS\REQUESTS\Internal\Intel Travel Times\IntelBase.aprx
2/28/2022



County Engineer
DELAWARE COUNTY Ohio

Effect on Delaware County

Intel investing \$20 billion in Ohio

Phase 1: 3,000 new permanent jobs + 7,000 construction + 10,000 local long-term related jobs (vendors/suppliers)

~70% of jobs are 2-year degree technician positions

~30% of jobs are 4-year degree engineering and business

Intel operates on two 12-hour shifts, 365 days a year

15%+ of permanent Intel and related company workers may live in Delaware County = 2,000 new employees + families

Intel jobs will be filled by people new to the area or by local residents, with new people to the area backfilling vacancies left by people moving to Intel



County Engineer
DELAWARE COUNTY Ohio

Effect on Delaware County

Demand for housing:

- Currently **1,300+ new residences** per year in unincorporated areas of Delaware County based on current Central Ohio job market growth.
- Reasonable to expect another residential building boom beginning 2024+ if interest rates drop and 2,000+ Intel-related housing units are needed in Delaware County.

Need for commercial/industrial space:

- Many desirable areas in Delaware County thanks to good transportation and utility availability
- Commercial/industrial tax base needed to offset residential growth



Other Information Included In Attached Slides

Township Road Maintenance Information
State Infrastructure Funding Opportunities
Cooperative Purchasing Information
Residential Development Information
Zoning vs. Platting
Pavement Maintenance Concepts



Questions?

Chris Bauserman, PE, PS
County Engineer

Rob Riley, PE, PS
Chief Deputy Engineer

Douglas Riedel, PE
Township Engineer

Phone: 740-833-2400
delcoeng@co.delaware.oh.us



Township Road Maintenance Information

Obstructions in the Right of Way

Roadside Drainage

Bridges and Culverts

Curve Signs

Sign Maintenance

Winter Road Maintenance



Obstructions in the Right of Way

O.R.C. § 5543.14 grants specific authority for removing trees and brush:

- ... the board of township trustees **may** trim or remove any and all trees, shrubs, and other vegetation growing in or encroaching onto the right-of-way of the township roads of its township, as is necessary in the engineer's or board's judgment to facilitate the right of the public to improvement and maintenance of, and uninterrupted travel on, county and township roads.
- ... board is **not required** to compensate the abutting landowner for trimming or removing such trees, shrubs, and other vegetation as is necessary to facilitate these rights.



Obstructions in the Right of Way

Blocked Culverts or Drainage Obstructions

- Can be removed per ORC 5571.14
- Must be for a public necessity
- Not for an isolated private drainage problem



Roadside Drainage

Road ditches are considered part to the road and subject to the various road improvement statutes

ORC 5571.15 Authorizes the board to “improve the drainage of water from the surface of the road”



Roadside Drainage

No authorization in Ohio Law for townships to:

- Improve drainage from private property adjacent to the road
- Make drainage improvements beyond those related to a public road
- Intervene in private property drainage problems or disputes



Bridges and Culverts

Structures on Township Roads

- Bridges – Span or diameter greater than 10 feet (County)
- Culverts – Span or Diameter of less than 10 feet (Township)
- County participates in Township Culvert projects
- Need advance notice to include your culvert in our budget – October 1 of prior year

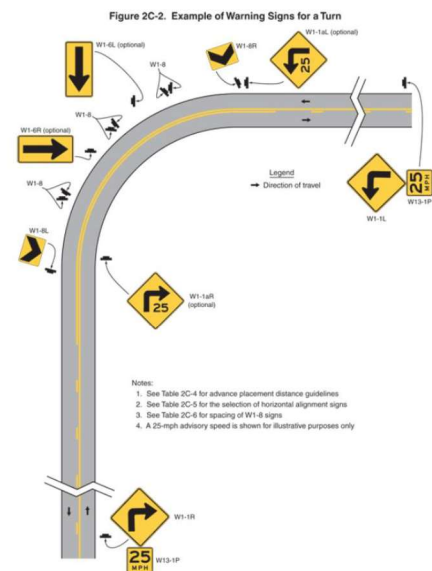


Curve Signs – Now Required!

Ohio MUTCD **requires** curve signs for roads with ADT over 1000 vehicles/day

What does that mean???

- All curves which require warning signs must comply with the OMUTCD
- If the advisory speed is 10 mph under the posted speed, curve signs are required
- Chevrons required if difference is 15 mph
- Roads with under 1000 vehicles per day are exempt from the requirement; however, signing is still recommended!



Sign Maintenance

You **must** have a management method in-place to maintain minimum sign retroreflectivity (since June 13, 2014)

- Systematic replacement at a certain interval (e.g. 10 years) is an acceptable type of maintenance method!

All regulatory signs (stop, yield and black & white signs)

- Stop, yield, speed limit, lane control, etc.

All warning signs (yellow/black and orange/black signs)

- Curve and intersection ahead signs, advisory speed, etc.

All street name signs (only certain colors are allowed)

- White lettering with either green, blue or brown background
- Black lettering with white background

Winter Road Maintenance

O.R.C. § 5571.08 Snow Removal

...the board of township trustees **shall** cause all the township roads within the township to be kept free from obstruction by snow.



Township Road Improvements

O.R.C. § 5571.01

A board of township trustees **may** construct, reconstruct, resurface, or improve any public road or part thereof under its jurisdiction...

O.R.C. § 5571.02

The board of township trustees **shall** have control of the township roads of its township ... and **shall** keep them in good repair.



State Infrastructure Funding Opportunities

Ohio Public Works Commission (OPWC Programs)
ODNR Clean Ohio Program and State Capital Bill



State Infrastructure Funding

OPWC Programs (SCIP, LTIP & Small Government)

- \$11-12 million available for grants in Round 37 (SFY 2024)
- Covers up to 90% of project cost but maximum points are achieved when grant request is <75%
- Typically maximum award is \$500,000

Other considerations for maximum points:

- Reconstruction and safety projects score higher than resurfacing
- Roads currently in poor condition score higher
- Projects on busy roads (high ADT) score higher
- Projects that are ready to construct score higher
- Smaller grant requests score higher



State Infrastructure Funding

For Paths and Trails:

ODNR Clean Ohio Trail Fund & Recreational Trail Program

COTF provides up to 75% of project cost (\$500,000 max)

- \$6.25 million provided annually statewide

RTP provides up to 80% of project cost (\$150,000 max)

- \$1.5 million provided annually statewide
- This is a federal program and requires additional environmental study documentation

State Capital Bill

Contact your state legislators

- Funding appropriated in capital bill and assigned to ODNR for oversight of grant



Cooperative Purchasing

County Road Improvement Program
State Purchasing Contracts



County Road Improvement Program

Combined competitively bid contract for County and Township paving and surface treatments

County commissioners will award the county work to the **lowest and best bidder** per O.R.C. 307.90

Township must award to the same bidder to be part of the Program. Each township holds a separate contract with the Contractor.

Contract Advertisement: **March 2022**

Award: **April 2022**

All curb ramps must be ADA compliant prior to commencing work under this contract!



County Cooperative Purchasing

Delaware County Cooperative Purchasing Contracts available to townships:

To be awarded in **January:**

- Curb and Sidewalk Construction
- Guardrail installation
- Tree Clearing
- Pavement Markings

To be awarded in **March/April:**

- Hot-mix Asphalt Material
- Liquid Asphalt Materials (emulsions for chip sealing)
- Cold Mix



State Purchasing Contracts

Ohio Department of Administrative Services

- Vehicles
- Equipment
- Furnishings
- Various Materials

ODOT Contracts

- Guardrail
- Sign Boards
- Pipe/Culvert Slip Lining
- Crack sealing

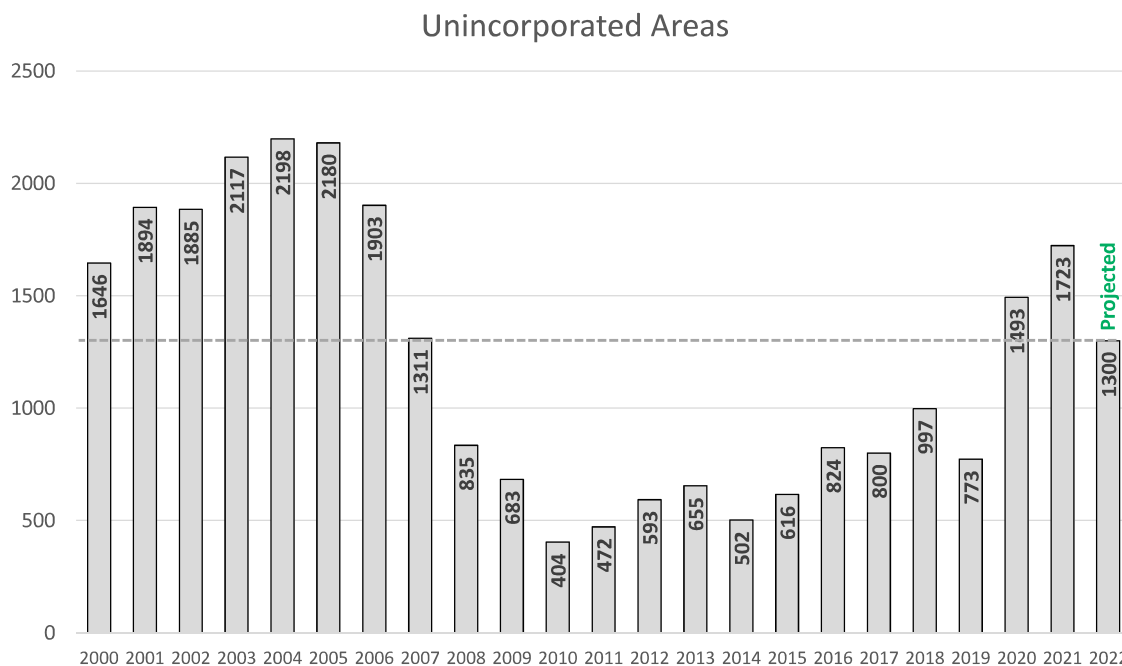


Development Information

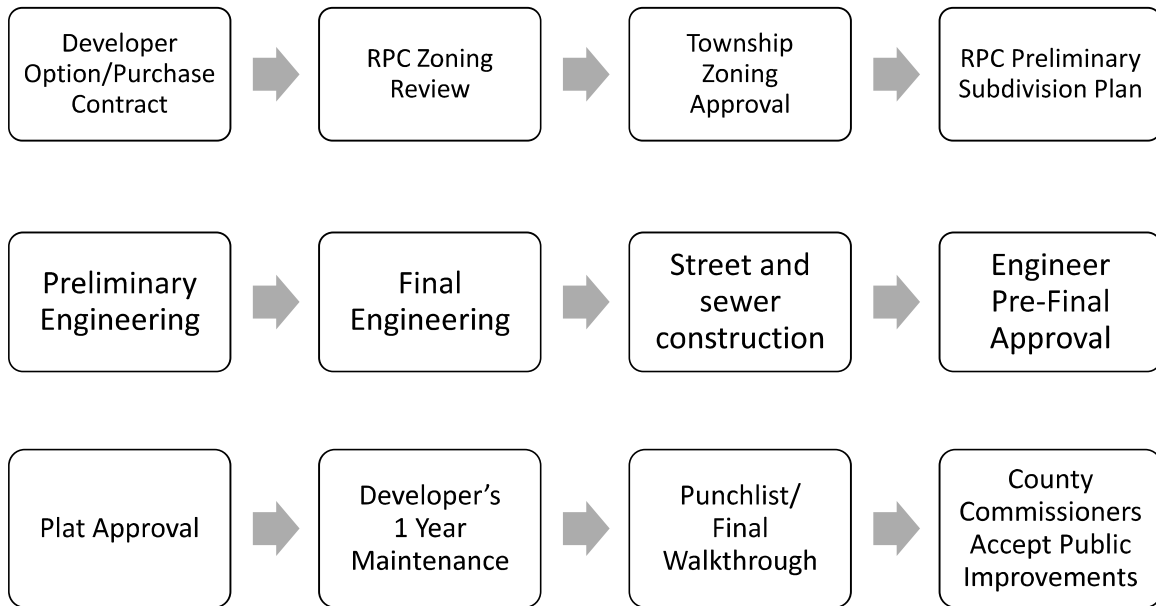
Residential Building Permits
Typical Residential Subdivision Process
Hybrid Single-Family Condos
Cluster Mailbox Units



Residential Building Permits

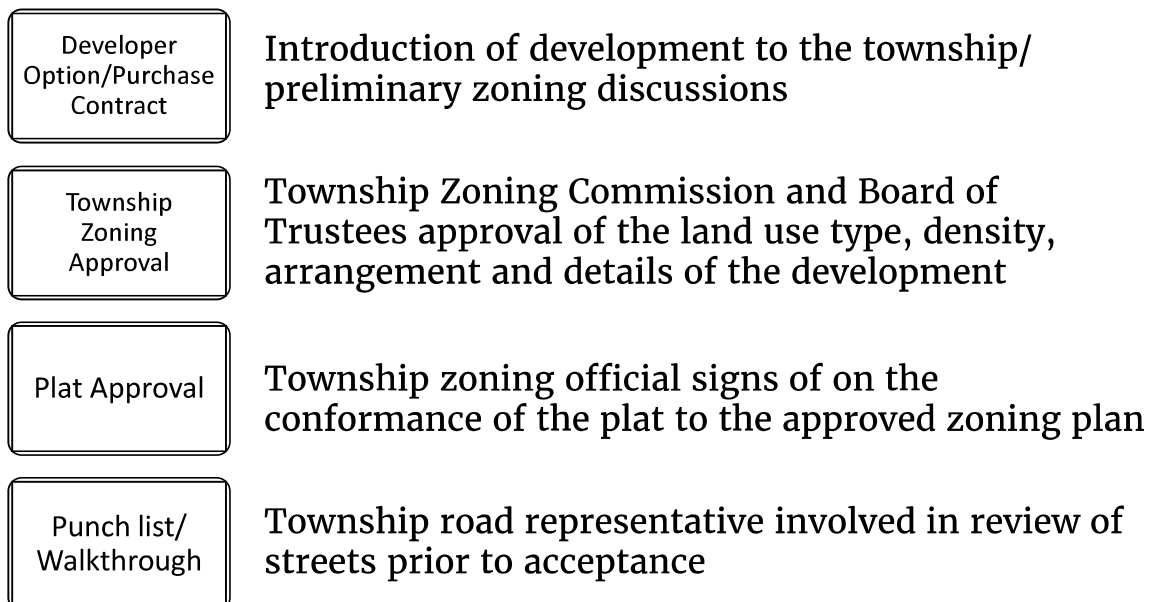


Typical Residential Subdivision Process



Typical Residential Subdivision Process

Township review/approval checkpoints



Hybrid Single-Family Condos

What are these?

- Subdivision with platted fee-simple lots that can be sold to a buyer prior to construction of the home
- Requirement in the subdivision plat to file condominium documents prior to occupancy
- Everything else looks similar to a typical single-family subdivision



Why do developers do this?

- Achieves higher density due to small setbacks
- Save money with narrower streets and thinner pavement section

Hybrid Single-Family Condos

Important considerations for the drives/streets:

- Long-standing DCEO requirement to construct private streets to public standards in any platted development
- However... condominiums are statutorily exempt from platting (R.C. 5311.02) meaning DCEO and RPC cannot require that the neighborhood drives conform to street standards or any other platting regulation
- To-date, developers have built these condo drives nearly to road standards but with notable differences
 - Narrower curb to curb width (23 feet vs. 27 feet)
 - Thinner pavement section (10-inch vs. 12-inch)
 - Narrower “right of way” (30 feet vs. 50 feet)
 - Sharper curves (75-foot radius vs. 250-foot radius)

Hybrid Single-Family Condos

Advantage for Townships:

- No township obligation for maintenance of streets
 - These condo drives don't meet the public street design requirements and DCEO won't be able to recommend future conversion to public streets

Disadvantages/Concerns for Townships:

- Future resident complaints to township that they are paying township road levy but receiving no benefit
- Failure of Condominium Association to maintain streets
- Fire and EMS response if neighborhood allows parking on both sides of the street
 - Enforcement?

Cluster Mailbox Units

Now being required by USPS in most single-family neighborhoods.

DCEO is working with Regional Planning Commission to develop standards for implementation.

1. Ensure adequate on-street stopping area in both directions
2. Provide ADA accessible curb ramps
3. Avoid placing in front of homes (place along open spaces)
4. Place strategically for most pickups inbound to neighborhood in afternoon



Zoning vs. Platting

Counties and Townships vs. Cities

Zoning vs. Platting

What Can Be Required of Developers?

Traffic Studies for New Developments



Counties and Townships vs. Cities

Counties are governed by statute under Title III of the ORC.

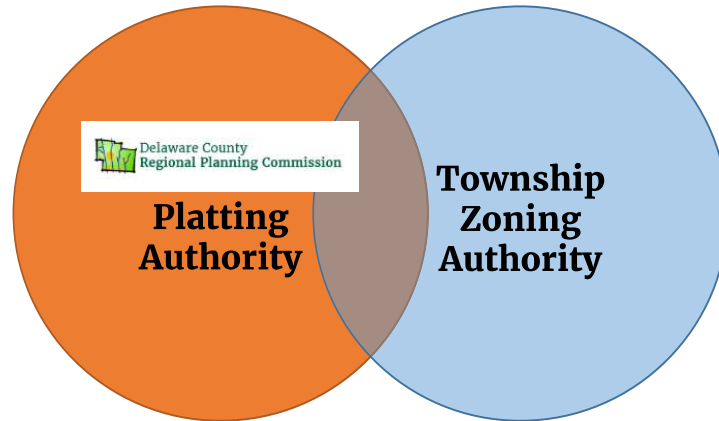
Townships are governed by statute under Title V of the ORC.

Counties and townships can **ONLY** perform the functions authorized under Ohio Law.

By comparison, municipal corporations can adopt any law by ordinance that doesn't conflict with Ohio Law.



Zoning vs. Platting



For cities and villages: Platting and zoning approvals usually **combined** under a Planning and Zoning Department.

For counties and townships: Separate statutory authority for platting and zoning.



Zoning vs. Platting

What is Platting?

In the unincorporated areas, **county planning commissions** or **regional planning commissions** created pursuant to Chapter 711 & 713 of the ORC can regulate “**platting**” or subdivision of land, meaning the division of any tract into a lot **under 5 acres**.

A **plat** is simply a map showing property lines which becomes the official legal description for any newly created lots within those boundaries.



Zoning vs. Platting

What is Zoning?

Townships are authorized under Chapter 519 of the ORC to regulate by resolution...

- Location, height, bulk, number of stories and size of buildings.
- Setbacks and uses of buildings.
- Uses of land for trade, industry, residence, recreation or other purposes.



Zoning vs. Platting

What can a planning commission regulate through platting?

- Requirement to construct streets or other improvements to serve new building lots.
- Arrangement of streets and other public improvements.
- Open spaces for traffic, utilities, access for firefighting apparatus, recreation, light, air and avoidance of congestion of population...



Zoning vs. Platting

County Engineer's Duties Relating to Platting?

O.R.C. Section 713.26

County Engineer **shall** assist the planning commission within the scope of county engineer's statutory duties involving roads, bridges, drainage and land surveying...

- Street design and construction
- Traffic studies
- Drainage, erosion and sediment control
- Subdivision plat accuracy



What Can Be Required of Developers?

Scope of local authority relating to requiring improvements (“exactions”) as a condition of platting has been litigated many times.

In general, any improvement required by a local agency as a condition of platting/subdividing must...

- Have essential nexus to a legitimate government interest (e.g. public safety, traffic flow, etc.)
- Provide some benefit to the platted lots
- Be roughly proportional to the projected impact of the development, both in nature and extent



Traffic Studies for New Developments

When are traffic studies required?

- Developments within platted subdivisions
- New roads or driveways on existing public roads

Who prepares the study?

- The developer or owner of the property
- Often started pre-zoning during “due diligence” phase

Who reviews the study?

- County Engineer staff or county’s engineering consultant

What standards and methodology are used?

- DCEO, like most agencies, uses Institute of Transportation Engineers (ITE) trip generation methodology



Traffic Studies for New Developments

What can be required?

- Pavement widening and setting back the ditch along existing road frontage
- Turn lanes in/out of the development
- Upgrades to the adjacent road and nearest major intersection(s)
 - May be in the form of a proportional contribution toward a planned future county or township upgrade.
- Limited access (i.e. no driveways) on certain high traffic streets inside the development -
 - Examples: Walker Wood Blvd., Highland Lakes Ave., Mount Royal Ave.



Traffic Studies for New Developments

What can't be required?

Upgrades where there is no measurable degradation caused by the development or the upgrade isn't proportional and/or directly attributable to the impact:

- Examples: Can't require a small subdivision to build a new 4-lane highway, or can't stop a subdivision because it creates a small additional delay at a nearby intersection

“Impact fees” or a **fixed-fee** for new trips added to the road network (no enabling legislation in the ORC):

- Some states do have legislation allowing impact or “capacity fees” based on number of new trips from a development

Prohibition of access:

- Unless access right has already been purchased by the public the development must be given road access of some kind



Summary

Local agencies walk a fine line with development exactions:

Legitimate authority to protect public health, safety & welfare

vs.

Unconstitutional taking without compensation

County Engineer is authorized to review traffic studies under Regional Planning's platting authority and/or under access to an existing public road.

Scope of traffic study must be consistent with legal principles involving platting of new lots or new/revised access to public roadways.



Pavement Maintenance Concepts

Infrastructure Assets

Pavement is Most Valuable Part

Pavement Condition Index

Pavement Maintenance Concepts

Preventive Maintenance Concepts

Worst First or Preservation Approach?



Infrastructure Assets

Roads are typically the most valuable asset of a political subdivision

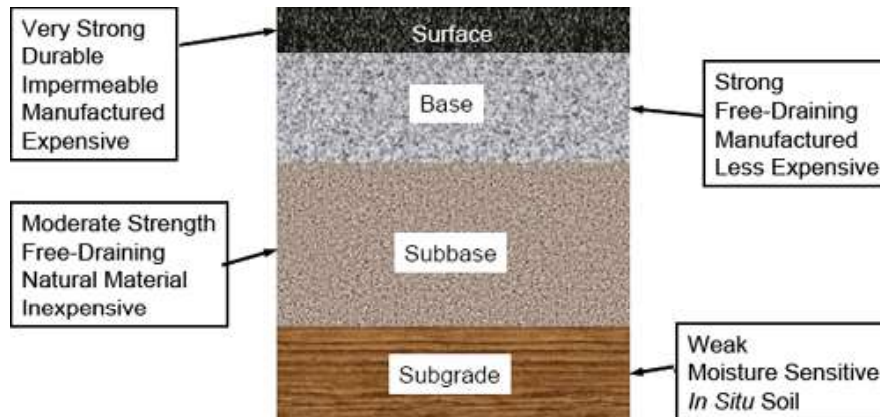
- A typical 2-lane road is worth \$1.2 to \$3.0 million per mile depending on width, type of drainage system and topography

Component	Typical % of Total Road Cost
Pavement and road base	30-40%
Drainage system (storm sewers/ditches)	15-30%
Major structures (bridges, retaining walls)	0-25%
Safety devices (guardrails, barriers, lighting)	<5%
Traffic control (signs, signals)	<5%
Right of Way (land, easements)	10-25%



Pavement is Most Valuable Part

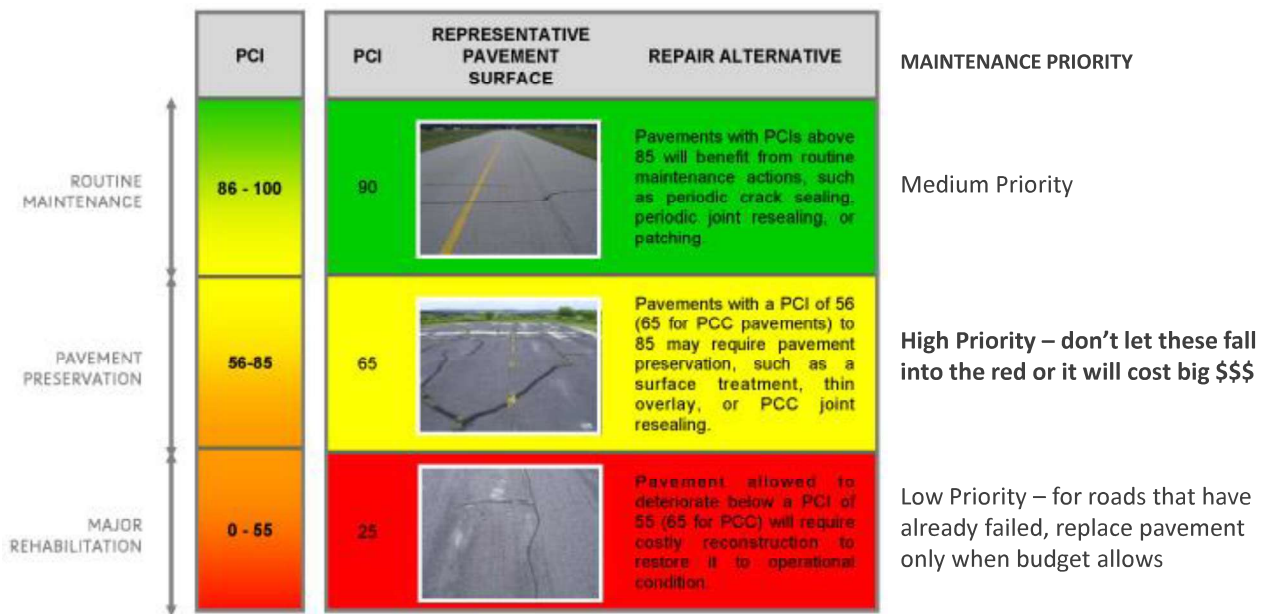
For a 2-lane road the pavement section is typically in the range of \$400,000 to \$1,000,000 per mile



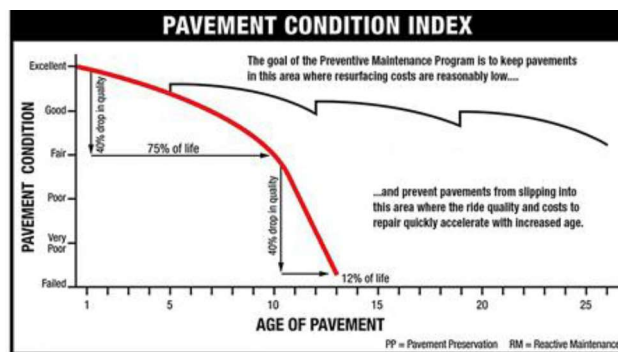
Pavement Condition Index



Pavement Maintenance Concepts



Preventive Maintenance Concepts



Worst First or Preservation Approach?

Don't fall into the "worst first" paving trap... once a road is "too far gone" keep it patched as cheaply as possible until you have the money to properly rehabilitate or rebuild it

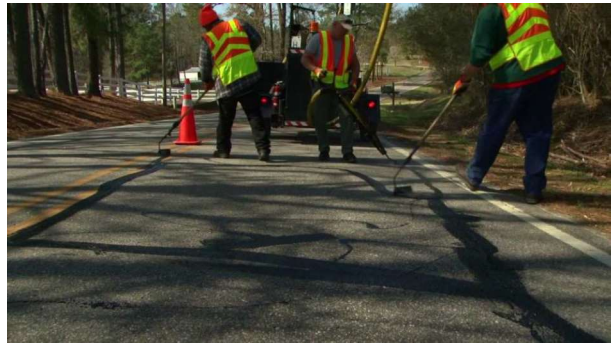
A thin overlay or mill & fill on a pavement that's lost its structural resilience will only last a fraction of the expected lifespan

Spend your money first on preserving your good roads

PCI = 15



PCI = 85



Worst First or Preservation Approach?

Worst first paving example (prices per square yard):

- Asphalt mill and fill at year #12 (\$10)
- Asphalt mill and fill at year #20 (\$10)
- Replace or rehabilitate pavement at year #28 (\$25)

Maintenance over 28 years (\$0.71) + replacement cost every 28 years (\$0.89) =
= Total annualized ownership cost **\$1.60 per square yard**

Pavement preservation example (prices per square yard):

- Rejuvenate at year #2 (\$0.90)
- Crack seal at year #6 (\$0.75)
- Asphalt mill and fill at year #12 (\$10)
- Rejuvenate at year #14 (\$0.90)
- Crack seal at year #17 (\$0.75)
- Asphalt mill and fill at year #24 (\$10)
- Microsurface at year #32 (\$2.50)
- Replace or rehabilitate pavement at year #38 (\$25)

Maintenance over 38 years (\$0.68) + replacement cost every 38 years (\$0.66)
= Total annualized ownership cost **\$1.34 per square yard**

