

NDDOT Needs Beyond Pavements and Bridges

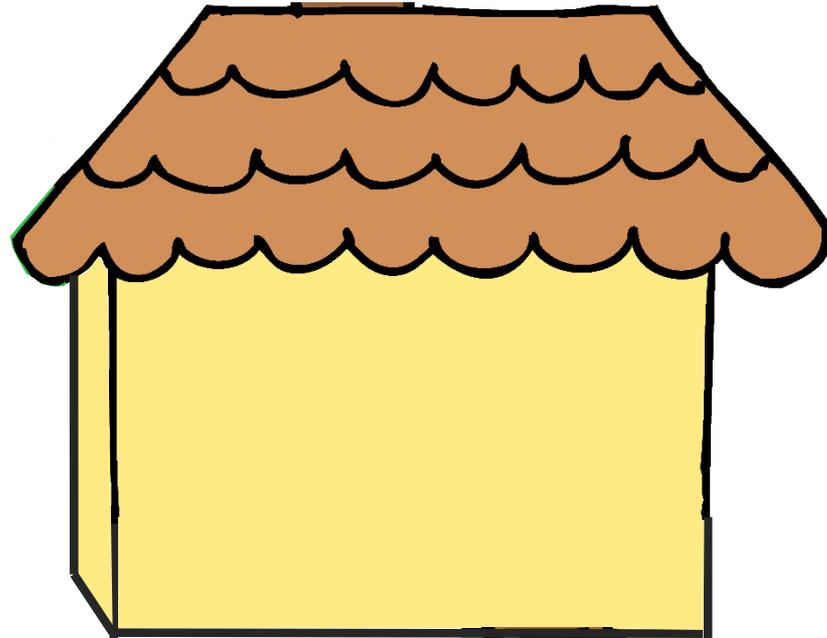
**Presented at the
Transportation Symposium
on Funding**

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NDDOT
North Dakota
Department of Transportation

Like a House



Like a House



Like a House



Like a House



NDDOT Invests in Your

- Safety
- Freight & Personal Mobility
- Drivers Licensing
- MV Registration
- Snow & Ice Control
- Bike & Pedestrian
- Transit
- Maintenance
- Rail



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NDDOT Invests in Your...

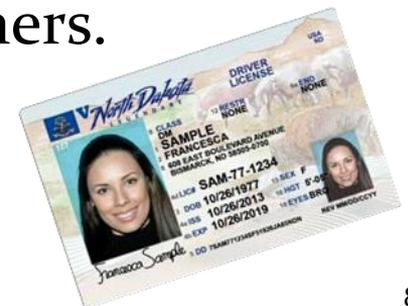
- **Safety**



- NDDOT considers safety in every stage of a project and in every investment decision.
 - Measure: Total # of fatalities & serious injuries per calendar year

- **Drivers License**

- Driver's licenses enhance safety by ensuring roadway users have demonstrated knowledge of the rules.
 - Measure: Avg. counter wait time for customers.



NDDOT Invests in Your...

- **Motor Vehicle Registration**

- Nearly 1M MV registrations & transactions per year.
- Measure: Avg. time for vehicle titles to be processed.

- **Bike & Pedestrian Infrastructure**

- Not everyone drives but still must travel; some are non-motorized.
- Measure: % of state roadway miles in cities with such non-motorized options (sidewalks, bikepaths, etc.).

- **Transit**

- Not everyone drives but still must travel; some use buses.
- Measure: Total statewide ridership.



NDDOT Invests in Your...

• Freight & Personal Mobility

- Unrestricted freight movement and uncongested roadways contribute to the economic vitality of the state.
- Investments improve roadway services
 - Increased load carrying capacity, more lanes, etc.
- Measure: % of state system meeting expectations for:
 - non-seasonal load carrying capacity,
 - bridge vertical and horizontal clearance,
 - seasonal load limit,
 - traffic saturation, and
 - roadway width.



NDDOT Invests in Your...

- **Pavement Management**

- Keeping good roads good.
- Measure: Avg. state system International Roughness Index (IRI)



- **Bridge Management**

- Keeping good bridges good.
- Measure: Avg. state system bridge health index



NDDOT Invests in Your...

- **Rail**

- Rail lines help move commodities throughout ND.
- NDDOT's low-interest Rail Loan program helps short-line railroads & rail-dependent businesses with rail infrastructure needs (e.g. mainlines, sidings, etc.)
- Measure: Mileage of short-line rail with lightweight rail (rail less than 110 pounds per yard) in ND.



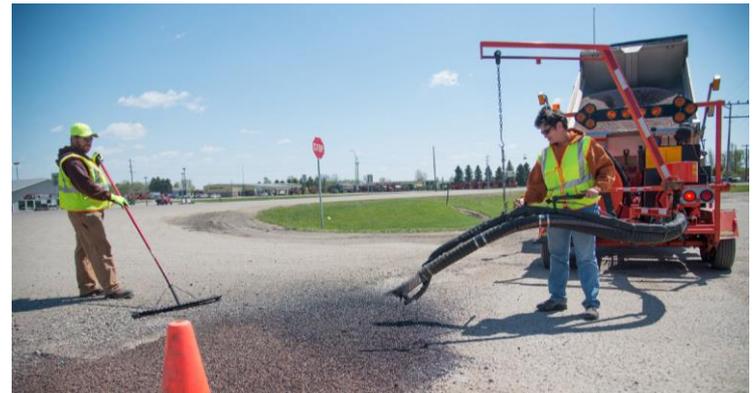
NDDOT Invests in Your...

- **Operating Road & Bridge Maintenance**

- Day to day operations and maintenance of the state highway system is paid for with state funds.
- Measure: % of planned work completed per year.

- **Snow & Ice Control**

- NDDOT ensures the transportation system is functional year-round, including in winter.
- Measure: Avg. travel speed recovery time after snow events.



Investment Scales

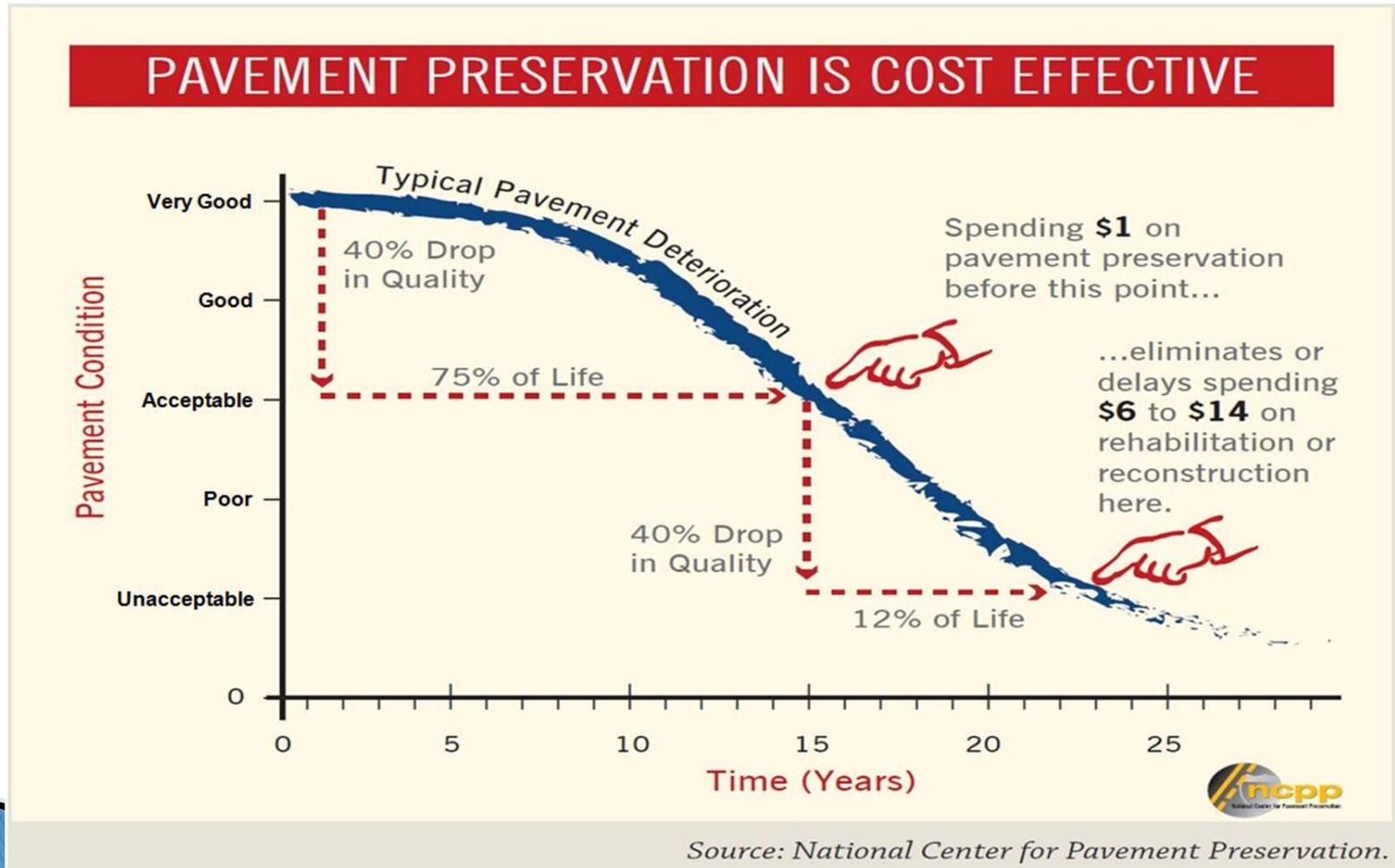
- Just like you can't buy a new roof by mowing less
 - NDDOT can't buy much pavement improvement by increasing Drivers' License wait time or storing \$220,000 plow trucks outside.
 - However, it can increase the life of those trucks by storing them in good facilities, in turn reducing Snow & Ice Control costs.

Investment Timeframes

- Building a house takes time:
 - Finding a lot
 - Arranging financing
 - Finding a builder
 - Design
 - Actual construction.
 - 1-2 years and we only need to please our own family.
- Transportation investments typically take 4-6 years (longer for major projects), with proper public input.

Investment Timing is Critical

- Long-term planning - known funding generates efficiencies.



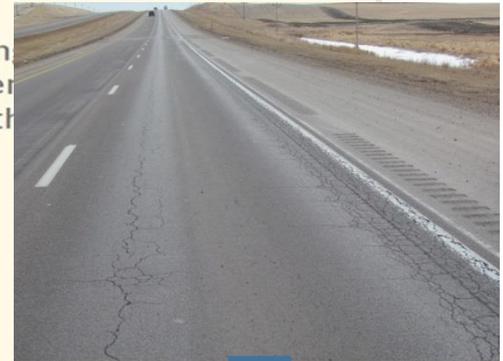
Investment Timing is Critical

- Long-term planning - know when to invest to avoid inefficiencies.



PAVEMENT PRESERVATION

VE



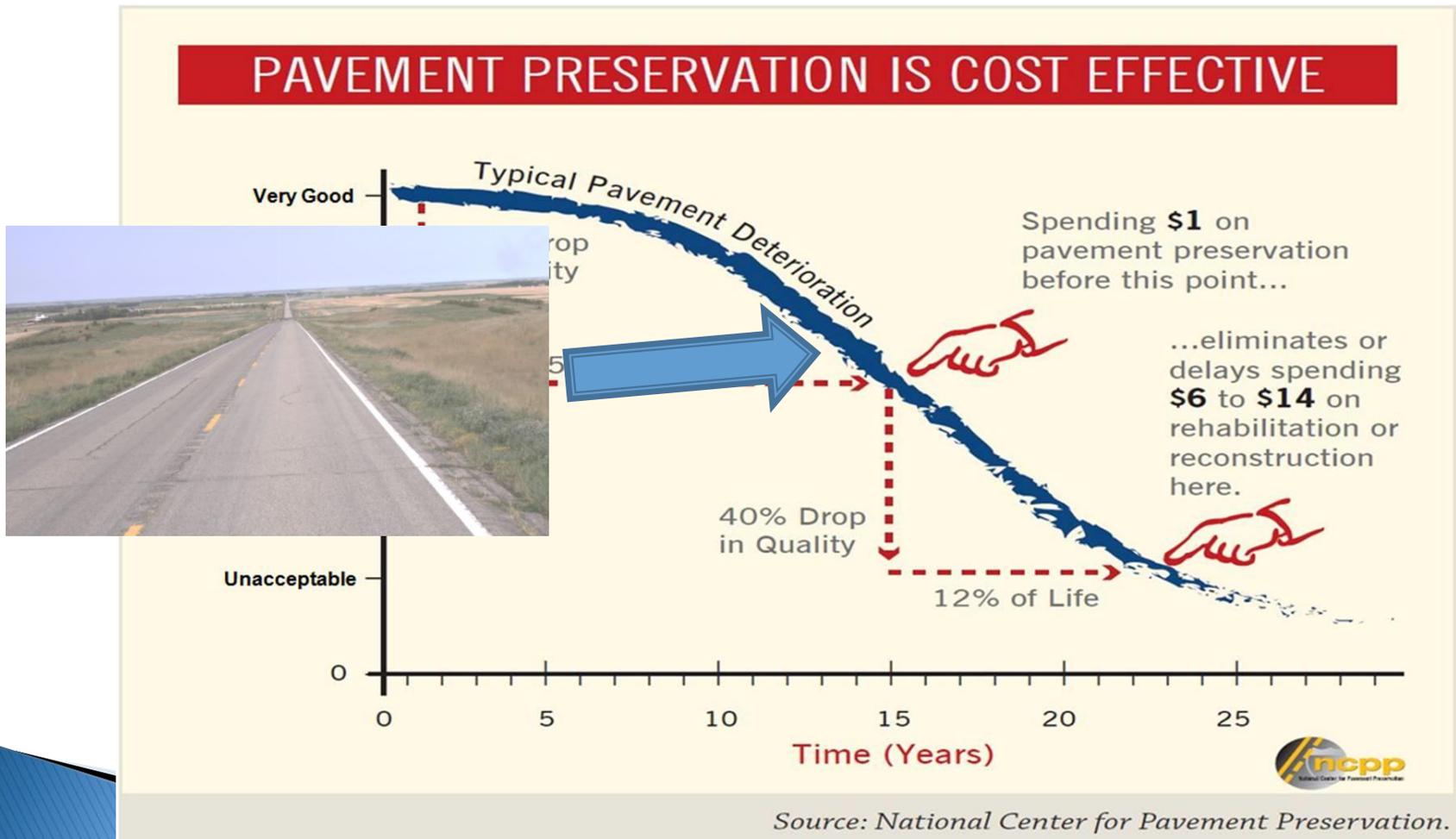
Spending pavement before the



ational Center for Pavement Preservation.

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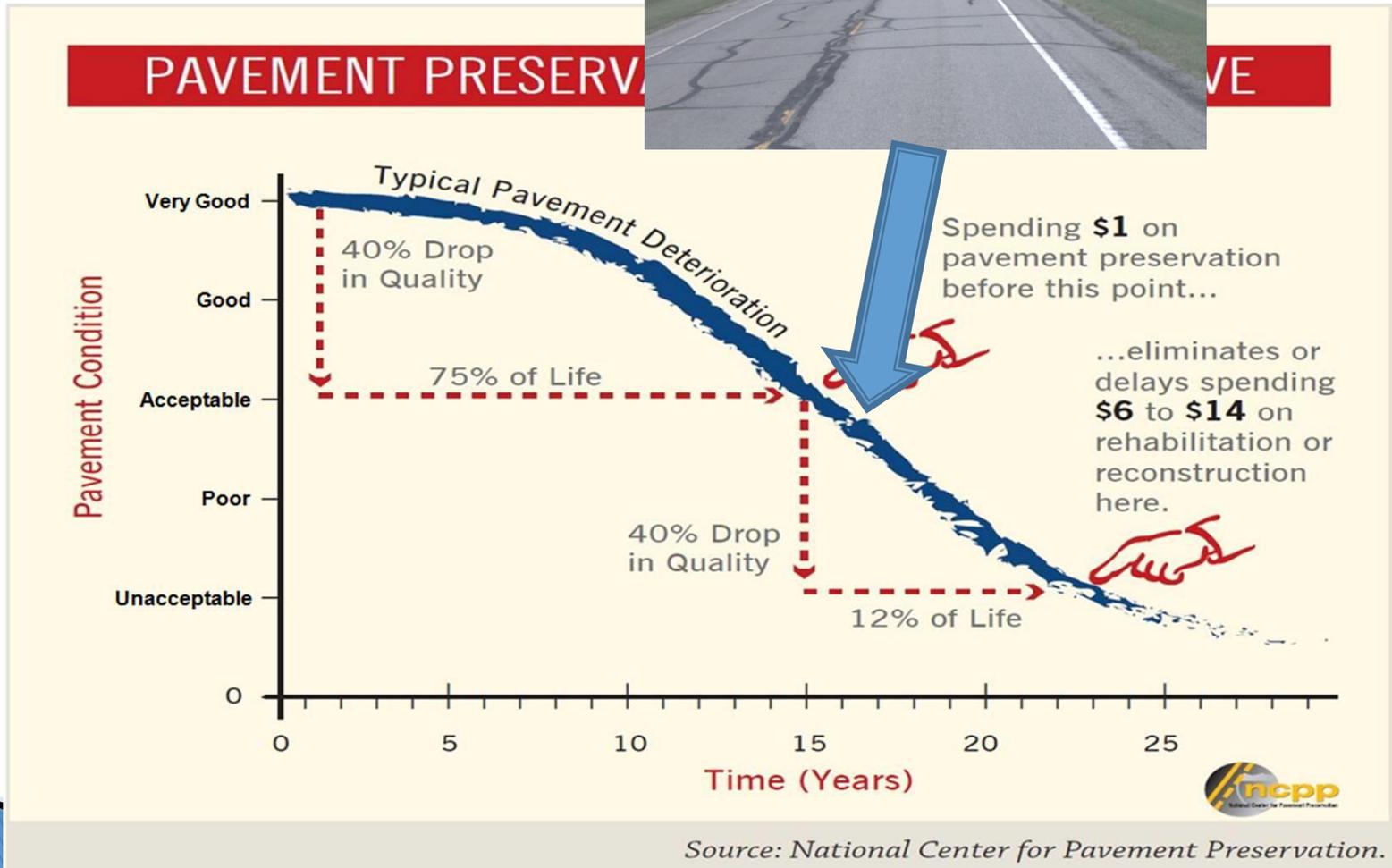
Investment Timing is Critical

Preventative Maintenance (preservation) treatment



Investment Timing is Critical

- Long-term planning - know your road's condition and anticipate future deficiencies.



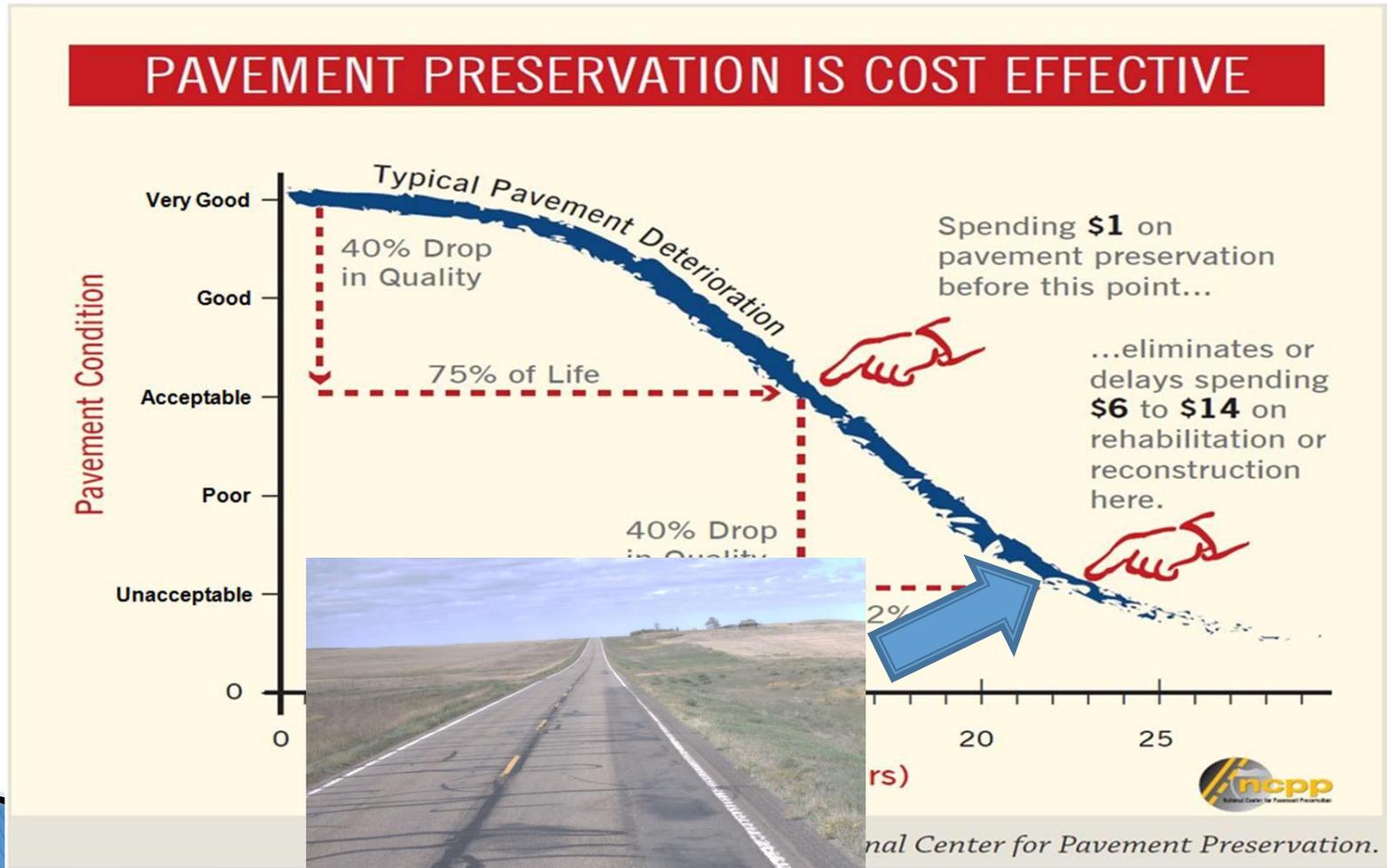
Investment Timing is Critical

Minor Rehabilitation (preservation) treatment



Investment Timing is Critical

- Long-term planning - known funding generates efficiencies.



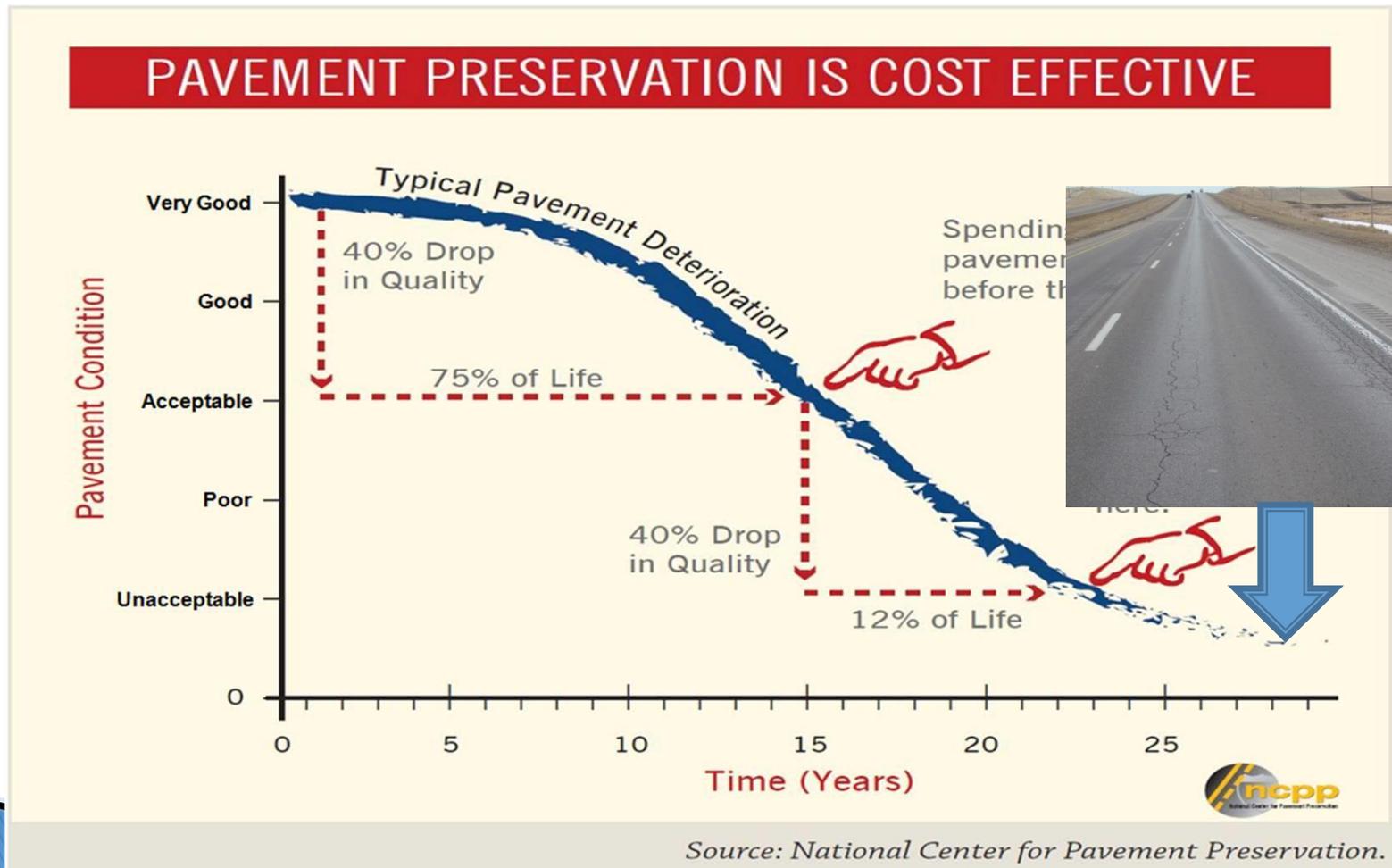
Investment Timing is Critical

Structural Improvement (beyond preservation) treatment



Investment Timing is Critical

- Long-term planning - known funding generates efficiencies.



Investment Timing is Critical

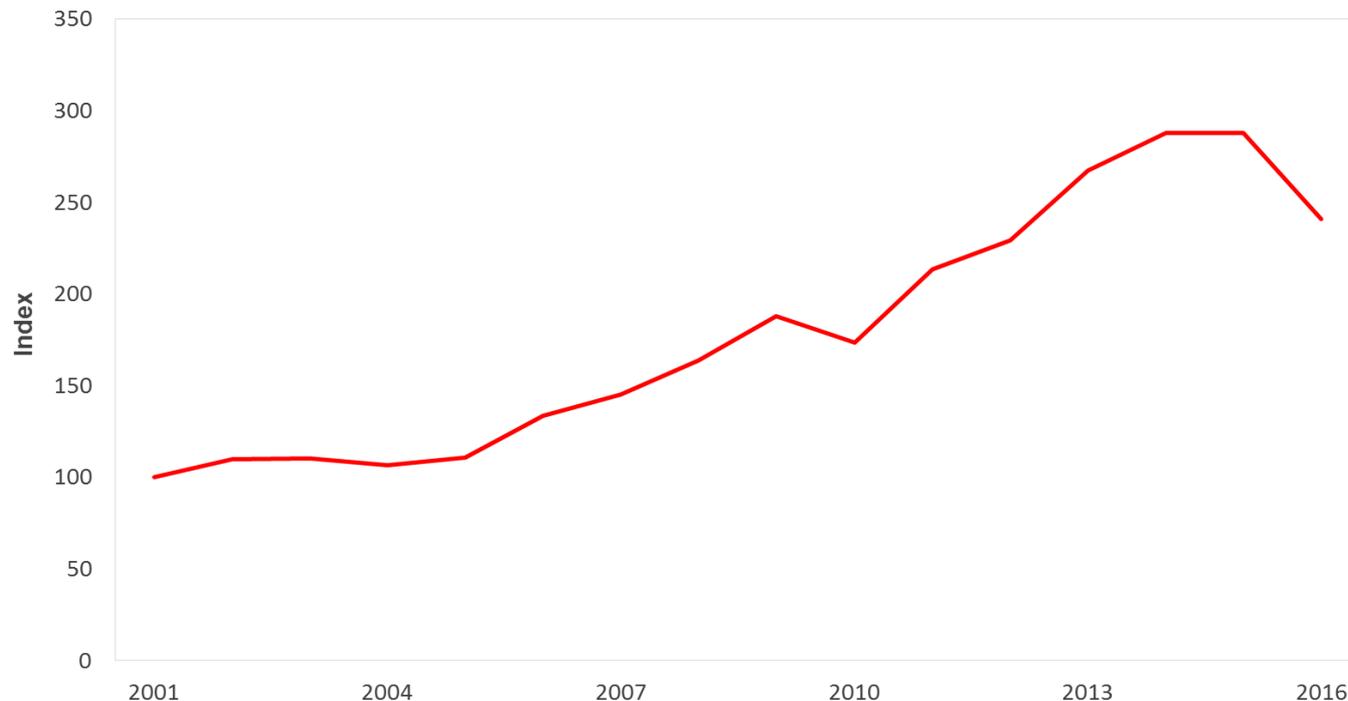
Major Rehabilitation/Reconstruction



Inflation

- UGPTI and NDDOT needs analyses ignore or minimize inflation, even though construction costs have risen:
 - 80% in approximately the last decade and
 - 117% since 2005, the last time ND raised the gas tax.

NDDOT Overall Construction Cost Index



Funding Needs

- UGPTI talked about pavement & bridge funding needs
- “Needs” are dependent on the desired service levels.
 - Like your house:
 - How much landscaping costs depends on how often you water and mow.
 - But, there are impacts to how that landscaping looks.



Funding Needs

- “Needs” typically are based on maintaining current service levels & optimal treatment timing.
 - That’s what UGPTI did for pavements & bridges, too.
- To maintain current service levels across all NDDOT services, over the next 20 years:
 - Would require investing \$24.6 Billion
 - Current funding levels would generate \$10.0 Billion
 - Equaling a gap of \$14.6 Billion over 20 years.
- We’re in Preservation Mode and can’t even keep up with that.

Funding Needs

- The real question isn't what are the funding "needs"
 - It's what service level are customers willing to pay for...
 - If they're unhappy with the current service level because:
 - It's too expensive, NDDOT can reduce cost by lowering service
 - It's not good enough, NDDOT can increase service for a price.
 - It's just like watering and mowing a lawn.



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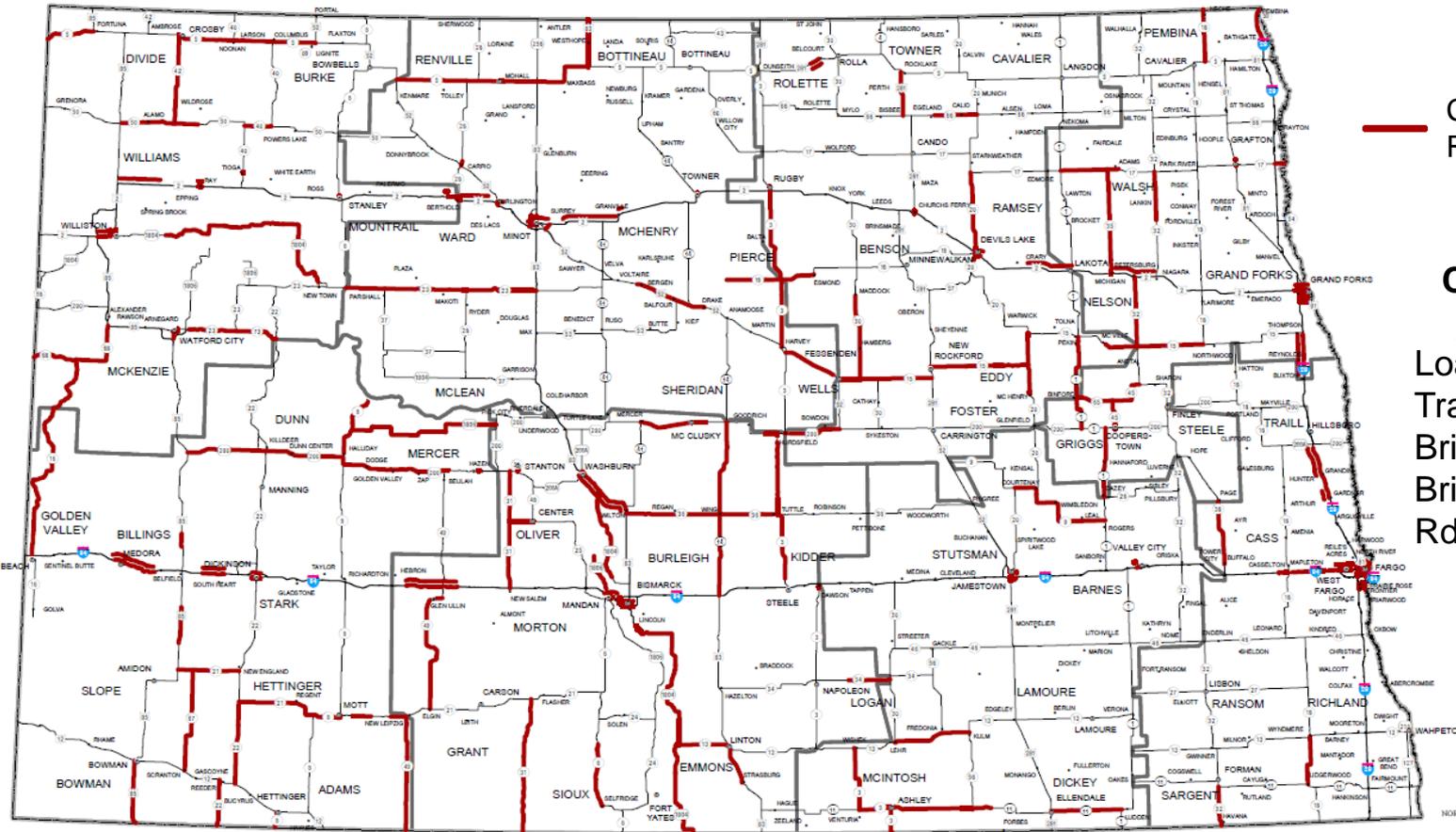
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North Dakota State Highway Freight Constraints - 2017



Constrained*
Roadways

**Constraints
Based On**
Load Limit
Traffic Volume
Bridge Height
Bridge Width
Rdwy Width



STATE OF
NORTH DAKOTA

PREPARED BY THE
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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY DEPARTMENT

April 2017

* Constraints are based on expected performance for the roadway level; lower level roads may have load restrictions & other limitations, even if not “constrained” on this map.

Summary

- Long-term predictable funding generates efficiencies:
 - Right fix, Right time, Right asset = lower life-cycle costs
 - Most transportation projects require 4-6 yr. lead time
- To keep up with Preservation Mode activities across all NDDOT services (e.g. roadways, maintenance, snow & ice control, motor vehicle, etc.), over the next 20 years:
 - Would require investing \$24.6 Billion or \$14.6 Billion more than today's funding level would generate.
 - This won't provide a system free of narrow shoulders, load restrictions, etc. but would meet guidelines on all levels of roadways and other services.

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