Local Roads & Streets: The Illinois Perspective

11th International Conference on Low-Volume Roads
July 12-15, 2015
Pittsburgh, PA
Illinois Perspective

• Illinois DOT
  – Central Office
    • Central Bureau of Local Roads & Streets
  – 5 Regions
  – 9 Districts
    • District Bureau of Local Roads & Streets
Illinois Perspective

• Local Forms of Government
  – 7,059 local governments (taxing bodies)
  – Illinois has the highest number of local governments in the country (2012 data)

• Local Public Agencies
  – 102 Counties
  – 1,457 Townships
  – 1,297 Municipalities
  – 2,856 total local agencies*
Illinois Perspective

Local Agency Comparison

• Big and Small
  – Cook County Population 5,194,675
  – Hardin County Population 4,320
  – City of Chicago Population 2,695,598
  – Village of Valley City Population 13
Illinois Perspective

Mileage Comparison (2014 data)

• Total Illinois Highway Mileage 146,765
  – Illinois DOT 15,978
  – Toll-way 294
  – Local Public Agency 130,493

• Annual Vehicle Miles of Travel 105,032,000
  – Illinois DOT 58,135,000
  – Toll-way 8,728,000
  – Local Public Agencies 38,169,000
Illinois Perspective

Bridge Comparison (2014 data)

• Total Illinois Bridges 26,667
  – Illinois DOT 7,823
  – Toll-way 529
  – Local Agency 18,315

• Total Deficient or Obsolete 4,193
  – Illinois DOT 1,503
  – Toll-way 129
  – Local Agencies 2,561
Illinois Local Agency Funding

Federal Funding

- STP (18.92%) $224,571,895
- STP-Bridge (15%) $33,685,784
- TAP $28,731,000
- HSIP $14,739,000
- RR / Highway Safety $6,207,000
Illinois Local Agency Funding

State Funding

• Motor Fuel Tax (CY2014) $561,159,014
• Grade Crossing Protection $42,000,000
• Local Benefits Program $36,600,000
• Township Bridge Program $15,000,000
• Economic Development $15,000,000
• Truck Access Route Program $7,000,000
Illinois Local Agency Funding

Local Funding

- Variety of locally imposed road and bridge taxes
- Locally imposed gas tax
- Road & Bridge tax
- Permanent Road tax
- Federal-aid Matching tax
• Funding allotments, distributions, and solicitations are done throughout the year
  – Most are done in late fall
• November – February
  – Annual programming cycle for local agencies
  – Projects are included in the IDOT annual and multi-year published program
Illinois Local Agency
Short- and Long-Term Issues

Short-term

– Funding shortage
– Rapid increases in material / construction costs
– 60 percent reduction in purchasing power
– Increasing regulations / mandates with no funding
– Public expectations (decreased level of service)
– Population growth / travel demand
– Aging workforce
– Political influences
Illinois Local Agency
Short- and Long-Term Issues

Long-term

– Better budgeting and forecasting tools
– Don’t build what you can’t maintain
– Replacing infrastructure (TBP & PCC deck beams)
– Public expectations (Urban residents relocating to rural areas)
– Increased environmental regulations
– Lack of State investment in State routes versus Interstate, pushes motorists to the local system
– ADA / Complete streets
Illinois Local Agency
Innovative Ideas

- STP-Bridge program
- County engineer salary program
- Formal pavement management system
- Incandescent to LED light change outs
- GPS tracking of agency vehicles
- Federal and State regulations somewhat prohibit local agencies from innovative opportunities
Thank you!

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International Low Volume Roads Conference 2015

NICOLE FOX, P.E.
SECONDARY ROADS ENGINEER
IOWA DOT – OFFICE OF LOCAL SYSTEMS
Iowa DOT owns/manages 9400 miles of roads and 4100 bridges

Counties own/manage 90,000 miles of roads and 19,000 bridges
- Farm to Market routes in cities <500 population

Cities manage 16,500 miles of roads and 1150 bridges
Iowa Financial Information

- **Road Use Tax Fund at State level**
  - Iowa DOT – 47.5%
  - Counties Secondary Road Fund – 24.5%
  - Counties Farm to Market Fund – 8%
  - Cities – 20%
Federal Funding

- STP funding to Locals
- Distributed through Regional Planning Affiliations and Metropolitan Planning Organizations
- LPA’s get about 31% of Iowa’s Federal Funding
- HSIP Funding
- HBP Funding (set aside of STP)
  - Counties $33 Million
  - Cities $9 Million
Counties

- **Secondary Road Fund**
  - distributed by Formula (VMT, LFBD, #Miles, Pop.)
  - Each county gets $2.2M-$7M from RUTF
  - Get property taxes for roads (Iowa Code)

- **Farm to Market Road Fund**
  - Distributed by Formula (VMT, LFBD, #Miles, Pop.)
  - Each County gets $600,000-$2M

- **Various Grant Programs**
  - TSIP – ½% RUTF
  - State Bridge Funds
Cities

- Funding based on population (~$120/person)
  - Largest city is 200,000 population
  - Capital City of Des Moines
  - $25 Million per year RUTF
Long term issues

- Recent 10 cent gas tax increase
- Funding is still not enough to sustain the system
- Have to make up for things they were putting off
  - Equipment replacement
  - Road rock
  - Construction
Innovative Ideas - Bridges

- Railroad Flatcar bridges
- GRS abutments
- Pre-fabricated timber structures
- Folded Plate Girders
- Precast Concrete Slab Bridges
- Internal Curing Concrete
Innovative Ideas – Other

- Safety Edge
- Various Maintenance treatments for pavements
- Gravel Road Stabilization
- Geo-columns on Frost Boils for gravel roads
- Asset Management for Pavements and gravel roads
- Research on Financial Needs of Counties
- Work Order tool for Maintenance projects
- Fabric Interlayer on pavement overlays
- Otta Seals
- Warm Mix Asphalt
Questions?

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Secondary Roads Engineer
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Louisiana LVR

Harold “Skip” Paul and Kirk Zeringue

LA State Highway System
- 16,687 state CL miles
- 27% of all roads in LA
- 11th largest state system
- ~80% rural
- ~2/3 on LVR
- 7,963 State bridges (60%)
Challenges

LVR Funding

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Challenges – cont’d
Oil & Gas Industry

• Total Wells = ~240,000
• Shale Wells*
  • Haynesville - 3084
  • Tuscaloosa - 47

*as of 7/13/15
Impacts To Traffic

- Increased traffic due to the movement of heavy equipment, fracking sands, and water
  - ~3,000 tons of sand required per well annually.
  - 6 million gallons of water needed to frack a well
- Traffic safety
- Increase in congestion
Impacts to LA roads/bridges/structures
I STOPPED YOU BECAUSE YOU WERE WEAVING ALL OVER THE ROAD!

I WAS TRYING TO MISS THE POTHOLES!

www.kenoshapolicce.com
§2531.3. Commercial littering prohibited; civil penalties; indemnification; special court costs
A. No person shall dispose or permit the disposal of litter resulting from industrial, commercial, mining, or agricultural operations in which the person has a financial interest upon any public place in the state, upon private property in this state not owned by him, upon property located in rural areas in this state not owned by him, or in or on the waters of this state, whether from a vehicle or otherwise, including but not limited to any public highway, public right-of-way, public park, beach, campground, forest land, recreational area, trailer park, highway, road, street, or alley, except when such property is designated by the state or by any of its agencies or political subdivisions for the disposal of such items and such person is authorized to use such property for such purpose.
B. No person shall operate any truck or other vehicle on any highway in such a manner or condition that litter resulting from industrial, commercial, mining, or agricultural operations in which the person is involved can blow or fall out of such vehicle or that mud from its tires can fall upon the roadway.
C. (1) If the litter is disposed of from a motor vehicle, boat, or conveyance, except a bus or large passenger vehicle or a school bus, all as defined by R.S. 32:1, there shall be an inference that the driver of the conveyance disposed of the litter. If such litter was disposed by a person...

Mud & Gravel on (Paved) Roads
Timber Pile Substructures

- District 04 has **58** bridges with timber pile substructures.
- We are exceeding the life expectancy of these piles.

Unauthorized Actions
Research

• “Right-Sizing” Truck Registration Fees
• FRP wraps of timber piles
• RCC & FDR test sections
• Infrastructure damage cost recovery
Managing Low-Volume Roads in New York State

David P. Orr, PE, PhD
Director
Cornell Local Roads Program
NY LTAP Center

NYS Highway Ownership

<table>
<thead>
<tr>
<th>Level</th>
<th>Number</th>
<th>Centerline Mileage</th>
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<tbody>
<tr>
<td>Town</td>
<td>932</td>
<td>58,436.5</td>
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<tr>
<td>City</td>
<td>62</td>
<td>12,254.4</td>
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<tr>
<td>Village</td>
<td>551</td>
<td>6,598.2</td>
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<tr>
<td>County</td>
<td>57</td>
<td>20,239.2</td>
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<tr>
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<td>15,123.4</td>
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<tr>
<td>Other</td>
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<td>2,057.5</td>
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<tr>
<td>Total</td>
<td>1,602</td>
<td>114,709.2</td>
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Bridges

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<tbody>
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<td>Local</td>
<td>8,606</td>
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<tr>
<td>State</td>
<td>7,674</td>
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<tr>
<td>Total</td>
<td>16,280</td>
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Highway Department Costs

Town Highway Costs in NYS (2012)
$1,056,000,000

LVRs
- Towns
- Villages
- Counties
- State
Local Highway Financing - Towns

<table>
<thead>
<tr>
<th>Level</th>
<th>$millions</th>
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<tbody>
<tr>
<td>Local</td>
<td>914</td>
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<tr>
<td>State</td>
<td>110</td>
</tr>
<tr>
<td>Federal</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>1,037</td>
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</table>

- Local: 88%
- State: 11%
- Federal: 1%

Critical Issues
- Budget
- Weather-related
- Lack of personnel

Idea
- Smart phones
- Web resources
- New maintenance methods
- Social media
Thank You

David P. Orr, PE, PhD
david.orr@cornell.edu
STATE OF OHIO

TRB INTERNATIONAL CONFERENCE ON LOW-VOLUME ROADS - PITTSBURGH, PA

JULY 14, 2015

- Greg Butcher, PE, MPA Violet Township
- Terry Lively, PS, PE Belmont County
STATE OF OHIO

- Population of 11.6 million
- 113,000 roadway miles
- 43,000 bridges
STATE OF OHIO

- Home Rule State - an amendment to the state constitution grants cities, municipalities, and/or counties the ability to pass laws to govern themselves as they see fit (so long as they obey the state and federal constitutions)
- 88 Counties, 950 Cities and Villages, 1300 Townships
- 84% of center line miles maintained by Locals
STATE OF OHIO

• Primary Funding Sources
  1. Gas Tax
  2. Motor Vehicle License Tax

• Other Funding Sources
  1. Income Taxes
  2. Voted/Unvoted Tax Levies (Based on Property Valuation)
  3. Indirect Funding-Road Use Maintenance Agreements (RUMAs)
STATE OF OHIO

MAINTENANCE RESPONSIBILITIES

- State Highway System - ODOT
- County, Municipality and Township by Jurisdiction
- Private Companies using the RUMA Process
STATE OF OHIO

OHIO RESEARCH INITIATIVE FOR LOCALS (ORIL)

- New program modeled after Minnesota and Iowa

https://www.dot.state.oh.us/Divisions/Planning/LocalPrograms/LTAP/ORIL/Pages/default.aspx
ORIL – What is it?

Providing real solutions to real problems... through research
ORIL – What is it?

Mission

• ORIL develops, funds and oversees transportation research projects to meet the needs of local agencies for the safety and economic well-being of the traveling public and Ohio.
ORIL – What is it?

Vision

• ORIL, with self-sustaining funding, identifies, manages and facilitates strategic research that solves local transportation challenges with implementable and cost-effective solutions.
ORIL – How does it work?

Who’s bringing the checkbook?

<table>
<thead>
<tr>
<th>ORIL</th>
<th>2,000,000</th>
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<tr>
<td>Two million and zero cents</td>
<td>FY 2013-2016</td>
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Support local research during FY 2014-2017

ODOT Research Program
ORIL – How does it work?

How does the money work?

- Used for research expenses only
- Contracted research projects
- Funds & contracts managed by ODOT

- Not for capital improvements
- Not for standard maintenance activities
- Not a grant program
ORIL - How does it work?

Four Phases

1. Idea Generation
2. Project Execution
3. Results Implementation
4. Program Assessment
MANAGING LOW VOLUME ROADS
Pennsylvania

11th International Conference on Low-Volume Roads
Pittsburgh, PA
Tuesday, July 14th
Management and Ownership

Linear Miles by Ownership

- Municipal: 800
- PennDOT: 779
- State (Other): 551
- Federal: 39,787
- PA Turnpike: 11
- Toll Bridge/Ferry: [VALUE]

Pennsylvania Department of Transportation
Financing

- Liquid Fuel Tax Fund allocated to counties based on average gas consumption
  - 4.17% of an annual millage rate as scheduled in Act 89
- Liquid Fuel Tax Fund allocated to municipalities based on road mileage and population
  - 20% of 11.5 cents of the Liquid Fuels and Fuels Tax receipts;
  - 20% of 35 mills of the Oil Franchise Tax, Section 9511 (c) of the Vehicle Code;
  - $5,000,000 (Act 68 of 1980) under Section 9301 of the Vehicle Code;
  - 12% of Act 26 of 1991, Oil Company Franchise Tax;
  - 12% (38.5 mills) of Act 3 of 1997, Oil Company Franchise Tax and Act 44 of 2007
Critical Issues

- Inventory and Condition of Local Assets
- Marcellus Shale Gas Extraction
- Unfunded Mandates
- Money Counts
• Will provide an additional $220 million a year in Liquid Fuels allocations statewide for locally owned roads and bridges by the fifth year – a more than 60 percent increase over current allocations to local governments.

• Up to $40 million in grant money by state fiscal year 2016-17 will be provided to coordinate traffic signals to alleviate congestion and save fuel. PennDOT and municipalities would each contribute 50 percent of costs.

• Up to $8 million will be made available annually for the paving of low-traffic-volume rural roads as part of a $35 million Dirt & Gravel Roads program.
• There will be a savings of up to 100 percent of the required local match, per bridge, for municipalities that participate in PennDOT’s bridge bundling program.

• Counties will have the option to assess a $5 vehicle registration fee to generate additional revenue for their highway and bridge needs.

• Provides incentives, including local match waivers, for transit agencies to consolidate in regions if consolidation studies show potential for cost savings and efficiencies.

• These measures provide additional assistance to municipalities and counties to help ease the pressure on property taxes.
Dirt and Gravel Road Program

- Act 89 of 2013 (PA Transportation Bill) not only increased the Dirt and Gravel Road Maintenance Program funding from $5 Million to $35 Million, it also dedicated a minimum of $8 Million of that money towards paved or sealed low volume roads with 500 vehicles per day or less.
Contact

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[www.dot.state.pa.us](http://www.dot.state.pa.us)
International Low Volume Roads Conference:
Managing Low Volume Roads in Virginia

July 14, 2015
Sean Nelson, P.E.
VDOT Fredericksburg Residency
Resident Engineer
Virginia’s Low Volume Network

Total lane miles maintained ~ 126,000

Total lane miles classified as low volume ~ 64,320

Total lane miles of low volume unpaved ~ 13,800
Funding Low Volume Roads in Virginia

$2 billion = Maintenance & Operations budget

$500 million = Money spent annually over past 2 years to maintain secondary system
Funding Low Volume Roads in Virginia

- Secondary Six-Year Plan
- Dedicated unpaved road funding
- Revenue sharing
- Urban funding
Critical Concerns

- Aging infrastructure
- Construction quality
- Drainage
Critical Concerns

- Sea level along coastal areas
- Unpaved roadways
- Preventative maintenance
Customer need vs want
Innovative Solutions

- Common sense engineering
- State forces construction
- Utilization of recycled products
Innovative Solutions

- Pavement reclamation
- Rural rustic program
- Thin lift asphalt overlays
- Public outreach
THANKS
Wyoming
Low Volume Roads

11th International Conference on Low Volume Roads
July 11 – 16, 2015
Pittsburg, PA

Shelby Carlson, PE
WYDOT District 5 Engineer
LVR Ownership

- Wyoming DOT (WYDOT)
- Counties
- Cities & Towns
- Bureau of Indian Affairs
  - Shoshone & Arapaho Tribal Transportation via Self-Determination
- Wyoming State Parks
- US Forest Service
- Bureau of Land Management
- National Park Service
Wyoming Public Road System
LVR Financing

Federal Funding Sources/Programs:

• Highway Improvement – NHS only
• Surface Transportation
  – Commission Road Improvement
    • $5.0 mil/yr, 15% match, road exchange, county
  – Urban Systems
    • $5.7 mil/yr, >5000 pop., LVR or HVR
• Bridge Replacement & Rehabilitation
  – $3.1 mil/yr set aside for off-system bridges
• Rail-Highway Crossings - $1.1 mil/yr
• Congestion Mitigation & Air Quality –
  – $2.0 mil/yr to Counties for dust abatement
• Federal Lands Access Program - variable
• TIGER Funds – variable
LVR Financing

State Funded Sources/Programs:

- **24¢ Gasoline Tax**
  - State – 55.1%, ~$43.6 mil/yr
  - Counties – 26.3%, ~$20.3 mil/yr (Counties & County Road Fund)
  - Cities – 14.7%, ~$11.1 mil/yr
  - State Parks – 3.9%, ~$3.0 mil/yr

- **24¢ Diesel and Special Fuels Tax**
  - State – 67.6%, ~$64.5 mil/yr
  - Counties – 18.1%, ~ $17.7mil/yr
  - Cities – 14.3%, ~$11.1 mil/yr + $4.4 mil/yr SF’s
LVR Financing

State Funded Sources/Programs:

• Industrial Roads
  – Counties - $2.0 mil/yr, 50% match

• State Parks Roads
  – $250,000 / yr, No Match req’d

• Vehicle Registration – Counties

• State Lands and Investment Board
  – Local assessments for improvement districts, bonds, etc.
Reservation Roads

- Road Miles –
  - Federal Roads held in Trust by the Bureau of Indian Affairs (BIA)
  - Support of ownership by the FHWA for those taken over by the individual tribes through Self-Determination
  - Rocky Mtn/Great Plains Tribes – 75%
    - MT-WY-ND-SD-NE
    - Wind River Reservation 1362 miles
      - All but about 20 miles are low volume
  - Navajo Nation – 25%
  - Other Reservations – City/County/State
    - i.e. - Alaska – 9 miles
Tribal Roads Programs

• Tribal Transportation - Construction
• Road Maintenance Funds
  – Department of Interior Budget
  – Road Maintenance Funds to Tribes via the BIA Budgeting Process
    • (Tribal Program Allocation)
  – Competes with Social Services, Education, Health, Law Enforcement, Courts, etc.
  – Roads become a low priority
• Under-funded
  – Maintenance - ~$300/mile
    • State/County/City Average ~$1,500 - $3,500/mile
    • Freeze/Thaw/Snow Removal
17-Mile Road
Working Partnerships

- **17-Mile Road (County Road #334)**
  - Shoshone & Arapaho Tribes
    - TIGER Funds - $8.2 million
    - Indian Reservation Roads - $427,000*
  - WYDOT
    - PLH Discretionary Funds - $4.7 million
    - CRIP Funds - $5.0 million
    - STP Funds - $3.9 million
    - High Priority H660 Funds - $90,000
- **Fremont County Funds**
  - County Road Funds - $1.2 million
- **Department of Tourism** - $85,000

Total = ±$23,600,000
Funding Partnerships
Beartooth “All-American” Highway
Beartooth Highway

- TIGER - $6.0 million
- Crown Butte Mine Settlement
  - $12.0 million, $2.0 million to plowing
- NPS – Matching Funds
- Forest Lands Funds - $3.34 million
- STP Redistribution Funds - $865,000
- PLH Discretionary Funds - $5.5 million
- Scenic Byway Funds - $57,000
- Forest Access Program - ??
Pavement Serviceability Index

- **Primary**
  - Less than 2: 106 (4%)
  - 2.00 - 2.50: 78 (3%)
  - 2.51 - 3.00: 177 (7%)
  - 3.01 - 3.50: 239 (10%)
  - Greater than 3.5: 837 (30%)
  - Missing: 1631 (57%)

- **County**
  - 2.00 - 2.50: 420 (17%)
  - 2.51 - 3.00: 1166 (46%)
  - Greater than 3.5: 36 (1%)
  - Missing: 36 (1%)

- **Secondary**
  - 2.00 - 2.50: 48 (2%)
  - 2.51 - 3.00: 760 (30%)
  - Greater than 3.5: 29 (1%)
  - Missing: 2 (0%)

- **Interstate**
  - 2.00 - 2.50: 125 (5%)
  - 2.51 - 3.00: 1543 (85%)
  - Greater than 3.5: 246 (13%)
  - Missing: 15 (1%)
Issues

• Maintenance
  – Pvmt, Invert Pen, Gravel, etc.
    • Consider procedures, products, etc. to balance added $ to benefits
  – Bridges –
    • Many 40-50 years old
    • 3 – 4 /yr to keep up – lack of $$’s
– Snow Plowing
  • Public Demands
– Aggregates
  • Becoming more difficult to permit gravel sources

• Drainage
  – Inadequate roadside drainage
    • Road acts as dam
    • Saturation/over-topping
    • Road damage
  – Focus on pavements, less culvert work
    • Deterioration / collapsing / leaking
Issues

• Farmland / Range land
  – Large pieces of equipment
    • Slow-moving, over-width
    • Safety / Mobility Issues
  – Irrigation
    • Prior Right
    • Standing Water (flood irrigation) saturating sub-grades
    • Aged Siphons – leaking
  – Fences
    • Deterioration
    • Livestock – Wyoming Fence out for Cattle
      – Burden on the road agency to maintain
      – Safety Issues

• Rural Sprawl
  – Private Subdivisions
    • Many w/o HOA, no road maintenance
    • Counties expected to take over
    • Pending Litigation
  – Snow Plowing of adjoining Collectors/Minor Arterials
Issues

• Mountainous Terrain
  – Land and rock slides
    • Permanent repair($$$) vs maintenance ($)
    • Safety Concerns
  – Plowing Burden

• Industrial Activity
  – Oil/Gas
  – Wind Farm Construction
  – Seasonal Usage

• Safety
  – Single Vehicle Roll-overs
    • Distracted Drivers
    • Alcohol and Substance Abuse
    • Lack of Seatbelt Usage
    • Speed
  – Intersection Crashes
Design Standards

- County Road Fund Manual
  - 2011 Revision – Joint effort
    - WYDOT
    - Wyoming Association of County Officials
  - Standards established for:
    - State or Federal Funded Projects - higher
    - County Road Funded Projects – lower

- Rebuild of Industrial Damaged Roads
  - What Volume / Loading do you design to?
    - May go back to 150 cars/day
    - Oil play/Wind Farm impacts may continue

- 1100 VPD is high for Wyoming
  - Do you build to the same standard for:
    - 500 cars/day? 300 cars/day? 100 cars/day
The End