



Appendices

Appendix A: Transportation Plan Development- TEA-21 Planning Factors

The following is a list of the TEA-21 factors to be considered in statewide planning and an explanation of where to find related information in this Long-Range Transportation Plan.

1. Support the economic vitality of the United States, the States, and metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency

Roads, Streets and Highways- Chapter 3
Other Transportation Modes- Chapter 4
Aviation
Rail Transportation
Intermodal Transportation

2. Increase the safety and security of the transportation system for motorized and non-motorized users

Other Factors for Consideration- Chapter 6
Safety
Security and Emergency Response

3. Increase the accessibility and mobility options available to people and for freight

Roads, Streets and Highways- Chapter 3
Other Transportation Modes- Chapter 4

4. Protect and enhance the environment, promote energy conservation, and improve quality of life

Other Factors for Consideration- Chapter 6
Social Impacts
Air Quality Standards
Other Environmental Issues
Advances in Alternative Fuels

5. Enhance the integration and connectivity of the transportation system, across and between modes throughout the State, for people and freight

Roads, Streets, and Highways- Chapter 3

Highway System Planning
Integration of Transportation Modes and Technologies- Chapter 5
Transportation and Land Use
Integrating Technology
Cooperation and Planning between Modes

6. Promote efficient system management and operation

Trends Affecting Transportation- Chapter 2
Transportation Funding Trends
Governmental Accounting Standards Board- Statement 34
Roads, Streets, and Highways- Chapter 3

Integration of Transportation Modes and Technologies- Chapter 5
Corridor Preservation
Corridor Management
Access Control for Freeways
Integrating Technology

7. Emphasize the preservation of the existing transportation system

The Long-Range Plan and KDOT Decision Making- Chapter 1
Stakeholder/Public Input
Trends Affecting Transportation-Chapter 2
Funding of the State Highway System
Integration of Transportation Modes and Technologies- Chapter 5
Corridor Preservation
Corridor Management
Access Control for Freeways

Appendix B: 2000 External Customer Survey

Executive Summary

Purpose and Methodology

The Kansas Department of Transportation (KDOT) conducted its second statewide customer satisfaction survey of Kansas residents during the fall of 2000. The first survey was completed during the fall of 1997. The purpose of the survey was to provide KDOT with information regarding how well the agency is meeting the transportation needs of Kansas residents.

The survey was administered by phone to a random sample of 1,848 Kansas residents. The sample was designed to ensure statistical validity of the results at the statewide, KDOT district, and KDOT area level. The statewide sample of 1,848 residents has a 95% level of confidence with a precision of at least +/- 2.2%.

Findings

- **Satisfaction with Highway Maintenance.** Overall, Kansas residents think KDOT's performance has improved since 1997. In 1997, the mean satisfaction rating (excluding don't knows) for all maintenance items was 70%. In 2000, the mean rating had risen to 74%. The five most highly rated maintenance activities were: maintaining signs, fixing guard rails, maintaining bridges, removing debris and litter, and mowing. Statistically significant improvements were made in seven of twelve areas. KDOT's performance did not decline by more than 1% in any area.
- **Most Important Maintenance Activities.** The five most important maintenance activities were fixing potholes, snow removal, pavement markings, fixing cracks, and maintaining lighting. The three least important were fixing guardrails, roadside mowing, and maintenance of rest areas.
- **Satisfaction with Highway Features.** Satisfaction with highway features has declined slightly since 1997, which was the final year of the Comprehensive Highway Program. In 1997, the mean satisfaction rating (excluding don't knows) for all highway features was 75%. In 2000, the mean rating had dropped to 71%. The five most highly rated highway features were: the accuracy of information on signs, center line striping, the location of signs, the reflectiveness of signs, and the ease of getting on/off highways. The three lowest rated features were the number of paved shoulders, the frequency of roadside rest areas, and the width of shoulders.
- **Most Important Highway Features.** The five most important features were width of shoulders, roadside striping, the smoothness of the road, centerline striping, and lighting at intersections/ interchanges. The three least important features were landscaping along highways, the accuracy of signs, and the frequency of roadside rest areas.

- **How Well KDOT is fulfilling its mission.** 76% of the residents surveyed who had an opinion thought KDOT was doing a good job of providing a statewide transportation system; another 22% thought KDOT was doing okay. Only 2% of those surveyed thought KDOT was doing a poor job.
- **Satisfaction with the productivity of employees along Kansas highways.** Kansas residents are generally very satisfied with employees who work along Kansas highways. Residents were ten times more likely to give good or excellent ratings (60%) for worker productivity than poor ratings (6%).
- **Residents Do Not Want Funding for Transportation Reduced.** 92% of the residents surveyed thought that funding for transportation in the State of Kansas should be increased (44%) or stay the same (48%) over the next five years. 6% of those surveyed did not have an opinion. Only 2% thought the current level of funding should be reduced.
- **Residents generally support the construction of bypasses around cities and towns along Kansas highways.** 86% of the residents surveyed supported the construction of bypasses around cities and towns along Kansas highways; only 6% were not supportive and 8% did not have an opinion.
- **The amount of contact Kansas residents have with KDOT employees has increased significantly.** During the past three years, there was a 44% increase in the number of Kansas residents who have had contact with a KDOT employee. Residents also indicated that they were more satisfied with the accuracy of the information and the timeliness of responses provided by KDOT employees.
- **Familiarity with the Road Condition Hotline increased significantly.** There was a 105% increase in the number of residents who reported that they were familiar with KDOT's Road Condition Hotline.
- **Most important improvements to the State's transportation system.** Although residents continue to think that funding for highways should be the State's top transportation priority, most residents expect the State to fund a wide range of transportation services including air, rail, and public transportation. The improvements that residents think are most important to fund include: repairs to existing highways, expanded transportation services for the elderly and disabled, additional shoulders along state highways, and additional lanes on heavily congested highways.
- **Changing priorities.** Overall, residents placed significantly less importance on pedestrian and biking facilities than they did in 1997. However, residents placed significantly more importance on the development of light/commuter rail, particularly in District 1.

2000 External Customer Survey

Stakeholder Interview - Executive Summary

During September 2000, ETC Institute conducted a series of interviews with leaders who influence transportation decisions in the State of Kansas. A total of sixty interviews were completed with representatives of a variety of organizations including city managers, city/county public works directors, consulting engineers, environmentalists, lobbyists, contractors, airport operators, rail operators, public transportation managers, chambers of commerce, and many others. The interviews were conducted by phone and took approximately 15 minutes to complete.

The purpose of the interviews was to gather input from representative of special interest groups on a wide range of transportation issues. The information gathered from the interviews will be used to develop a survey instrument that will be administered to residents throughout the State of Kansas during the fall of 2000. The survey will be designed to measure customer satisfaction with the State's transportation system.

Organizations Participating in the Interviews

- American Concrete Pavement Assoc.
- Anderson & Coffey County
- APAC - Kansas - Reno Division
- Atchison/Amelia Earhart Airport
- B&W Electrical Contractors
- Ballou Construction Co., Inc.
- Bayer Construction Co.
- Bemis Construction Co.
- BG Consultants
- Blosser Municipal Airport
- Bryant & Bryant Construction
- Bucher Willis and Ratliff
- City of Bonner Springs
- City of Chanute
- City of Edgerton
- City of Prairie Village
- City of Roeland Park
- City of Wellington
- City of Oberlin
- City of Abilene
- City of Greensburg
- City of Norton
- City of Kingman
- City of Hutchinson
- Clark County Highway
- Clarkson Construction Company
- Coffey County Road and Bridge
- Coffeyville Municipal Airport
- Cook, Flatt & Strobel
- Cowley County
- Doniphan County Highway
- Evans-Bierly-Hutchinson & Assoc.
- Federal Highway Administration
- Geary County Public Works
- Greater Kansas City Chamber
- Hall Brothers Construction Co.
- J & R Sand Co., Inc.
- Johnson County Transit
- Kansas Highway Patrol
- Kansas Asphalt Association
- KS Chamber of Commerce and Industry
- King Construct
- Kirkham, Michael & Associates
- Klaver Construction Company, Inc.
- Martin Marietta
- Mid America Regional Council
- Oakley Municipal Airport
- Pratt Airport Authority
- Russell Municipal Airport
- Schwab-Eaton
- Shettlar, Griffith, Shettlar
- Smith & Oakes
- Sprint
- Taylor & Assoc
- TranSystems Corporation
- U.S. Army Corps of Engineers
- Unified Government-Wyandotte County
- Union Pacific
- US Environmental Protection Agency
- Venture Corporation

Overall Ratings of the State's Transportation System: Each of the stakeholders interviewed was asked to rate the State's overall transportation system as excellent, good, average, or poor. Thirteen (22%) rated the system as excellent; thirty-four (57%) rated the system as good, twelve (20%) rated the system as average, and one (1%) rated the system as poor.

The State's Most Important Transportation Problems/Needs: Each of the stakeholders interviewed was asked to identify the most significant problems or needs for the State's transportation system today. The most frequently mentioned needs included

- maintenance and repairs to existing highways and bridges
- more transportation funding
- relief of traffic congestion in certain areas
- expanded public transportation
- better freight and passenger rail service
- improved air service for rural areas

Geographic Areas and Transportation Corridors that Stakeholders Think Should Receive the Highest Priority Over the Next 20 Years: Each stakeholder was asked which geographic areas or corridors in the State of Kansas they thought should receive the highest priority over the next 20 years. More than 60 specific areas were mentioned by those interviewed. Frequently mentioned locations are listed below:

- I-70 KC to Denver.
- Hutchinson to I-70 at Hays.
- I-35 (Olathe to KC).
- Southeast Kansas lacks good highway connection to rest of Kansas.
- K-10 bypass around Lawrence.
- US-69 from KC south.
- Good connections between cities like Hutchinson-McPherson and Liberal-Garden City.
- Highway 77 (Manhattan KS to Lincoln, NE).
- US-83 Oklahoma line to Interstate 70.
- Links between I-70 & I-80.
- Northeast Kansas along US 75.
- US 169, US 69 have high traffic volume/congestion and high accident rates.
- Great Bend to I-70.
- US 50 Garden City to Dodge City.

Funding

Each of the stakeholders interviewed was asked how satisfied they were with the current level of funding for transportation in Kansas. Thirteen (22%) indicated they were very satisfied; thirty (50%) indicated they were somewhat satisfied, five (8%) said they were not satisfied. The remaining 12 (20%) did not have an opinion.

Concerns About KDOT's Project Selection Process

Each of the stakeholders was asked if they were satisfied with KDOT's project selection process. More than half of those interviewed indicated that they did not know enough about the process to have an opinion. Of those who did have an opinion, nearly two-thirds indicated that they were not satisfied with the process, many felt that the process was too political.

Perceived Role for Non-Automobile Transportation

Stakeholders were asked their opinions about the role of non-automobile transportation, such as public transit, bicycle/walking trails, intermodal facilities, airports and other modes will have in the State's transportation system over the next 20 years. Although some stakeholders felt that KDOT should remain focused on highways, most felt that the State should support a multi-modal transportation system.

Appendix C: KDOT 2001 Road Rally Summary

During the summer of 2001, the Kansas Department of Transportation conducted Road Rallies with a randomly recruited sample of Kansas residents. More than 500 persons from 10 counties participated in Road Rallies that were held in six locations: Olathe, Pittsburg, Garden City, Wichita, Colby, and Salina. Participants boarded 15-passenger vans, which were driven over different sections of highways and were asked to complete a survey to evaluate the condition of highway features.

The purpose of the Road Rallies was three-fold: (1) to identify features that Kansas residents think are most important on different types of highway, (2) to determine expectations for the condition of Kansas highways; and (3) objectively measure perceptions about priorities for the State's highway system.

In addition to gathering feedback about expectations for the State's highway system, the Road Rally survey was designed to identify which features are most important on different types of highways. Participants rated the importance of the following features:

- Width of lanes
- Smoothness of the road surface
- Physical condition of the road surface (i.e., number of potholes/cracks)
- Width of outside shoulders
- Width of inside shoulders
- Type of shoulder (gravel, pavement, etc.)
- Horizontal alignment (how sharply the highway curves left/right)
- Sight distance
- How well traffic flows
- Centerline Striping
- Roadside Striping
- Adequacy of sign
- Lighting

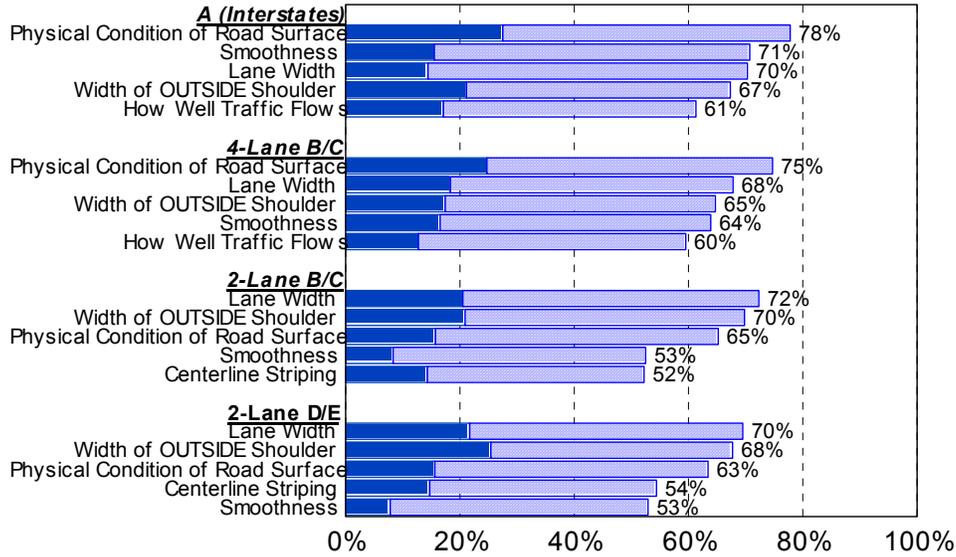
The information gathered from the Road Rallies is being used as part of KDOT's priority formula. The data is also being used as part of the Agency's Strategic Management Plan to help achieve KDOT's long term goal of providing a transportation system that meets the needs of the traveling public.

Road Rally participants rated the importance of various highway features with regard to the type of highway on which they had just traveled. The importance ratings correspond to the level of concern that Road Rally participants place on each of the features.

The most important highway features for each of the four major types of highways were rated: Class A (Interstate highways), 4-Lane Class B/C (higher volume US/State Highways), 2-Lane Class B/C (higher volume US/State Highways), and Class D/E highways (lower volume state highways). The rating reflects the sum of "most important" and "very important" ratings (ratings of 4 and 5 on a 5-point scale). The following graphs show the relative importance of all features that were rated for each type of highway.

Highway Features That Are Most Important to Residents by Type of Highway

by percentage of Road Rally participants who rated the items as a 4 or 5 on a 5-point scale where 5 means "most important" and 1 means "not important"



Source: ETC Institute 2001 Road Rally Survey

Relative Importance of Highway Features by Type of Highway

features are ranked in descending order by the combined percentage of Road Rally participants who rated each item as a 4 or 5 on a 5-point scale where 5 means "most important" and 1 means "not important"

Highway Feature	A (Interstates)	4-Lane B/C	2-Lane B/C	2-Lane D/E
Physical Condition of Road Surface	1	1	3	3
Smoothness	2	4	4	5
Lane Width	3	2	1	1
Width of OUTSIDE Shoulder	4	3	2	2
How Well Traffic Flows	5	5	8	10
Signage	6	7	10	9
Roadside Striping	7	8	7	7
Sight Distance	8	6	6	6
Centerline Striping	9	9	5	4
Lighting	10	11	11	12
Width of INSIDE Shoulder	11	13	NA	NA
Type of Shoulder	12	10	9	8
Horizontal Alignment (curves)	13	12	12	11

Source: ETC Institute 2001 Road Rally Survey

Appendix D: Comments from Long-Range Planning Stakeholders

Agency/KDOT Bureau Comment

Alternative Fuels

Bureau of Construction and Maintenance	Currently using biodiesel where available and not more than 10 cents over the gasoline price per gallon.
Division of Planning & Development	Alt fuels and movement to ethanol will reduce fuel tax revenue. We will need to explore new funding streams.
Kansas Motor Carriers Association	There are too many boutique fuels being produced. These need to be limited so there is a reasonable supply and cost. The states need to work with EPA to set an agreed upon standard.

Alternative

Modes

Johnson County Transit	KDOT should think long-term regarding urban areas and their multi-modal needs.
Kansas Turnpike Authority	Additional ROW for bike and pedestrian use along the turnpike is extremely expensive for the amount of expected use.
Lawrence MPO	Greater emphasis should be given to bike and pedestrian issues. They endorse mainstreaming of bike lanes into design consideration.
Sierra Club	KDOT needs to set a vision for something other than highways and shift more attention to other modes.
Wichita MPO	Consider inclusion of new and retrofitted pedestrian and bicycle facilities and make sure to follow through. KDOT should confirm an active role in securing passenger rail to Wichita. Railbanking statutes make it difficult to create trails. The laws should be reviewed. KDOT should pursue an intermodal facility in the Wichita area.

Bonding

Kansas Development Finance Authority	The Development Finance Authority would be happy to bond improvements for KDOT. They can identify streams of revenue and work with the legislature on KDOT's behalf.
Office of Management and Budget	Bonding authority shackled with a lot of debt service. Increased efficiency/alt fuels/electric cars will decrease revenues over the long run. May need to shift taxation to registration and/or solar power sources. Change the concept of unlimited program.

Construction

Techniques

Bureau of Construction and Maintenance	KDOT is using soy resins for patching. We are extremely proactive with recycling of materials.
Kansas Department of Health and Environment	There needs to be some type of agreement to handle clearing and burning with more coordination and notification. In the future it may be necessary to do more nighttime construction for AQ purposes. Epoxies and thermoplastics should be used prudently.
Kansas Water Office	Concerning bridge modification there is often a lack of landowner's knowledge of bridges going in and what the implications could be.

Agency/KDOT Bureau Comment

Coordination

Division of Emergency Management	More coordination and information sharing is an emphasis- Data Access Support Center (DASC) We have a very good working relationship with KDOT responding to needs arising from storms or accidents. KDOT is always there to help.
Kansas Department on Aging	State agencies should share their marketing and outreach resources when addressing similar issues.
Kansas Dept of Wildlife and Parks	Need help from us to educate the media and public about Threatened and Endangered species. Wildlife and Parks becomes a convenient scapegoat for the media when issues arise that have already been addressed earlier in the planning process.
Kansas Turnpike Authority	1. Need to move the turnpike out at US54/K96. 2. S terminal from Wellington moving 2 miles S to handle capacity. 3. Geometrics horrible in Emporia
Kansas Water Office	A summit to coordinate on water projects would be helpful.
Lawrence MPO	A process needs to be created to work together to address the long-term upkeep and maintenance of older roads in Kansas. The MPO needs to be involved during project conception before the project is presented to the public.
Mid-America Regional Council	There should not be any disconnect in the transportation systems between Kansas and Missouri.
Wichita MPO	Locals should be involved early in project development. Project criteria is used as a defense but then the project takes on a "life of its own" and grows in scope. There needs to be better coordination between KDOT's Bureaus of Design and Planning.

Corridors

Lawrence MPO	Participants strongly support the idea of identifying corridors for long range improvements.
St. Joseph MPO	Priority Corridors should be identified, especially those that cross state lines. When US 36 is four lanes across Missouri it will put pressure on Kansas to do the same.
Traffic Engineering	There is a Statutory disconnect: improve the Chapter 12 and 68 Home Rule and State Highways. A Consolidated Planning Requirement only exists at the federal level.

Economic Development

Kansas Dept of Commerce & Housing	When business are deciding where to locate ultimate access is more important than the type of facility in front of the business.
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Agency/KDOT Bureau Comment

Elderly Transportation

Kansas Department on Aging	There is a transport need at nursing facilities. Residents will often use transit services targeted to rural areas to go from nursing homes to the congregate meal sites, utilizing an already scarce resource. Driving education efforts targeted at the elderly would be helpful, especially how to maneuver around roundabouts.
Social and Rehabilitative Services	Decline in nursing home residences might result in increases in home services.

Forecasts

Kansas Motor Carriers Association	KDOT needs to do forecasts that more accurately takes into consideration freight movement.
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Freight

Kansas Dept of Commerce & Housing	Transportation costs to the Mexico border are three times more expensive than the Gulf Coast. However, the Gulf is avoided because the wheat is mixed and loses its quality.
Kansas Highway Patrol	The Highway Patrol is supportive of PrePass and Weigh in Motion
Kansas Motor Carriers Association	Long-haul trucking will grow 25% to 35% over the next 5 years. It is cheaper & faster to transport by truck rather than rail; US-54 is a good business corridor for the SW as well as US 50 West to Colorado. Heavier axle loads and longer combo truck standards are being developed.

Funding Strategies

Kansas Dept of Commerce & Housing	They would like to look into the possibility of matching Transportation Enhancement funding with CDBG funds.
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Future Projects

Kansas Turnpike Authority	Future projects include: 1. Widening the turnpike between Topeka & Lecompton-2007, 2. Replacing the steel on the KS River Bridge in Lawrence- 2012, 3. Widening Lecompton to E. Lawrence and E. Lawrence to KC., and 4. Build a new interchange S of Tonganoxie (currently unfunded)
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Infrastructure Reporting

Office of Engineering Support	GASB-34 requirement - how much will it cost KDOT and local governments?
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Agency/KDOT Bureau Comment

ITS

Division of Emergency Management	Interested in more sharing of information and the ability to track trucks carrying hazardous materials.
Division of Planning & Development	ITS should be mainstreamed into every project, as "just another design element"
Johnson County Transit	From an operational standpoint ITS is a great benefit to transit. Currently, Hays and Hutchinson are pilot projects for route logistics.
Kansas Public Transit Association	There needs to be as many agencies as possible tying into the regional ITS architecture.
Wichita MPO	ITS and access management need to be a joint effort.

Land Use

Kansas Dept of Commerce & Housing	Highway oriented development drains Kansas downtowns.
Sierra Club	KDOT's emphasis of bypasses encourages urban sprawl.

Motorist Assist

Traffic Engineering	More statistical look at motorist assist. Talk to locals, look at other states get an idea of recommended # of vehicles and how often serviced.
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Priority Formula

Traffic Engineering	Low traffic volumes increase the rate. Correctability- should rate or frequency determine? Crisis management based on need would be a huge policy shift.
Mid-America Regional Council	MARC has a desire to better understand KDOT's evaluation of projects, in particular the Priority Review Formula.
Wichita MPO	The Priority Formula should be changed to identify interchanges.

Public Image

Kansas State Historical Society	They would like to see KDOT become a more publicly accessible & responsive agency. Currently it has the perception of being difficult to access.
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Public

Involvement

Division of Public Affairs	District level public involvement may expand in the future
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Agency/KDOT Bureau Comment

Public Transit

Americans with Disabilities Act Coordinator	The goal is integration of disabled, aging and the general public in public transit. There needs to be more coordination between infrastructure and transit. For example, sidewalks and curb cuts along bus routes need to be accessible for connections and loading.
Johnson County Transit	Funding currently not even at mid-range. They want to maximize state funding for capital expenses and utilize federal funding for operating costs. Coordinated Transit Districts need more seminars and training.
Kansas Public Transit Association	One barrier to providing rural service is that the USDOT and Health and Humane Services are prohibited from competing with private providers, who can bill Medicare for reimbursement.
Social and Rehabilitative Services	Lack of public transit is a serious problem for the poor. Handicap and accessibility issues are also important. SRS pays private providers \$500,000 a year for transportation. Currently SRS is trying to get a waiver to hire a transportation broker.

Reauthorization

Office of Engineering Support	Needs to be flexible
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Record

Management

Kansas State Historical Society	The Historical Society is interested in preserving KDOT records. KDOT is one of the few agencies that they do not protect the records for.
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Roadside

Management

Kansas Dept of Wildlife and Parks	The amount of ROW land in Kansas is equal to amount of park land. Wildlife and Parks supports the Living Snow Fence and USDA Continuous Conservation Program. KDOT should adopt an IRVM Program. It is important for bird life & hunting. Native grass does not lead to increase in accidents. Haying is being done inconsistently and contrary to the plan.
Bureau of Construction and Maintenance	Living Snowfence- complex and requires a lot of coordination. Logistics beyond our ROW is difficult.
Sierra Club	The Sierra Club supports the use of native grasses and plants for roadside vegetation and reduced mowing.

Rural Air

Service

Kansas Dept of Commerce & Housing	There is a disconnect between General Aviation airports and the roles of KDOT & KDOC&H. KDOC&H would like to see an advocate for rural air service step forward.
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Agency/KDOT Bureau Comment

Safety

Division of Planning & Development	KDOT should continue to be strong advocate for occupant safety (primary seat belt).
Kansas Dept of Wildlife and Parks	Deer related accidents are 25% of reported accidents. Efforts to reduce deer related accidents should focus on education and awareness. Wildlife and Parks needs current data from KDOT as soon as possible.
Traffic Engineering	K-TRAN studies on text, sheeting types and off sets of signs for aging population. Road safety audits, enforcement cameras. Set higher standard for 2 lane road that may become 4 lanes. Boost seat belt usage.

Short-Line Railroads

Kansas Corporation Commission	It is important to keep the short-line railroads viable.
Kansas Dept of Commerce & Housing	Short-Line railroads should be encouraged and promoted. Roads and bridges are not designed for heavy freight. Kansas needs to be proactive against rail abandonment.

Signing

Kansas Department on Aging	Signs should have larger fonts because older drivers need time to make a decision way in advance. KDOT should work to influence cities and towns to accommodate older drivers in their signing practices.
Kansas State Historical Society	It is difficult to learn and work through the signing policy and to know who to go to. The Historical Society experiences questions from the public on a regular basis as to who owns what signs. Public confusion is an issue for them. KDOT should be more involved in running the Highway Marker program.
Traffic Engineering	In the future, move toward a technological advanced warning, such as verbal messaging in vehicle navigation to replace signs. Already a pilot project. Encourage private market-our role is to set a protocol of standardization

State Infrastructure Bank

Kansas Development Finance Authority	KDOT ought to consider reviving the idea of a State Infrastructure Bank.
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Streams/Wetlands

Army Corp of Engineers	Wetlands- The Corp does not regulate isolated wetlands-has to be a stream or in 100 year flood plain. Now a determination has to be made on each wetland, whereas before every wetland was regulated. It is important to have the Corp. involved up front in design for emergency stream banking. There are opportunities for hydrology studies.
Kansas Dept of Wildlife and Parks	New Farm Bill will pay landowners for planting along the ROW on the private side to keep pollution out of the ditches. The drainage of roadside wetlands is becoming an issue. Possible wetland banking opportunities exist.
Kansas Water Office	KDOT should maximize opportunities for wetland mitigation banking.

Agency/KDOT Bureau Comment

Taxes

Kansas Motor Carriers Association In the future we look to see excise fees replace property tax. Tax revenues are tapped out. Trucking companies already pay tolls when they pay taxes for the operation of private roads.

Prairie Band of Potawatomi Motor fuel taxes are not making it back onto reservation roads. Funds should be directly suballocated.

Transportation Enhancement Funds

Kickapoo Nation in Kansas The Kickapoo Tribe would like to match tourism funds with TE funding to create trails at the Pow-Wow grounds.

Travel and Tourism

Division of Public Affairs We need to become the owner of 511 Traveler Information.

Kansas Dept of Commerce & Housing Construction sites not well marked. Abandoned properties along the interstate area are an eyesore. They are interested in using Transportation Enhancement or Economic Development funds to remove them.

Kansas State Historical Society KDOT has not been involved enough in promoting tourism of the state. There are opportunities for more involvement in signature events such as the Bicentennial, Kiosks at rest areas, and more attention to Scenic Byways. The Historical Society is willing to help KDOT promote the Milepost publication.

Comments Received from the Public

Topic	Comments
Rail-Trails (7 comments)	<p>Kansas should put more effort and funding into trails for hiking and biking. Rail-trails have many benefits including, inexpensive and healthy exercise, economics, appreciation of nature, transportation, sociability and ecology. Rail-trails are great for tourism, attracting people into small towns and rural communities. In other states they attract many users from local areas and visitors and have visible positive economic impacts on the smaller communities. Kansas is 50th in the nation as far as percentage of land available for public use; rail-trails can help address this and provide tourism for small cities.</p> <p>Other general comments were received expressing support of the Rails-to-Trails program.</p>
IRVM (6 comments)	<p>KDOT should adopt an Integrated Roadside Vegetation Management (IRVM) Plan. By choosing natives over introduced species for roadside projects, the department can promote education of both the value and beauty of the prairie. Further, safety, reduction of erosion, reduction of employee time and financial resources spent on maintenance, improvement of aesthetics, and the protection of wildlife and native vegetation can often all be enhanced by the same roadside management strategies.</p> <p>Kansas has more tallgrass prairie vegetation than all the other states combined. KDOT, being the largest landowner in the state, has a unique opportunity to utilize native prairie vegetation for ecotourism and enhance wildlife by preserving the prairies. KDOT should protect the remaining tallgrass prairie during construction and reconstruction projects.</p> <p>Other benefits include cost savings and improved water quality. KDOT should establish IRVM practices that are specifically designed to reduce stream contamination from roadside pollutants and litter. KDOT should also avoid projects that require destruction of the wetlands. Taxpayer dollars that are saved from reduced mowing, spray, and erosion control can better be utilized to maintain the roadway instead of the roadside.</p>
Route Specific (5 comments)	<p>Since the Statewide Long-Range Transportation plan is a policy document and not project specific, these comments were forwarded to KDOT's Bureau of Traffic Engineering for review and consideration.</p>
Public Transportation (3 comments)	<p>More information about public transportation and carpooling should be made available, particularly between Wyandotte County and Johnson County. Financial support from KDOT for public transit is very important to North-Central Kansas to provide good, accessible transportation for medical or work needs.</p> <p>Additional roads create more impervious surfaces, negatively impact small towns and increase our dependency on oil consumption. More attention should be focused toward alternative transportation modes such as light rail, to reduce the need for more roads.</p>
Bicycle/Pedestrian (3 comments)	<p>KDOT needs to acknowledge bicycle travel as a viable mode of transportation. Highway design in Kansas does not safely accommodate bicyclists. An internal examination of design standards that do not appropriately address bicycle/pedestrian modes could result in standards changes. A Statewide Pedestrian-Bicycling Advisory Council should be established in Kansas to address bicycle and pedestrian needs.</p>

Comments Received from the Public

Recreational Trails (3 comments)	Kansas needs more recreational trails. They will add to the quality of life of Kansans by providing opportunities for safe places to hike, bike or jog. Kansas's greatest export is its own citizens, seeking recreational opportunities in states that are willing to provide.
Rail/Intermodal (2 comments)	KDOT should look at other modes to efficiently and cost-effectively meet Kansans transportation needs. Putting vast amounts of product on rail for shipment to users would remove trucks from the road, reduce cost to the consumer, and make Kansas highways safer. Rail transportation also prolongs the life of major roads by mitigating the effects of truck traffic. The State Rail Service Improvement Fund should be enhanced as it has had significant cost benefit results.
Scenic Byways/Tourism (1 comment)	The Kansas Scenic Byways Program should continue. The program diverts traffic from busier roads, provides travelers with information to improve their traveling experience, preserves the beauty of Kansas roadways, and promotes tourism.
Other/General (4 comments)	Additional highways should be considered in the two counties larger than 400,000. Other comments referenced the turnpike, and the current economic status of the state.

34 total public comments received

Appendix E: 1995 Kansas Long-Range Transportation Plan Status of the 48 Recommendations

State Highway System:

1. **Any program in the future should be balanced between maintaining the existing system as the highest priority with providing the opportunity for enhancement to the State Highway System where there may be a need.**

A 10-year Comprehensive Transportation Program (CTP) providing over \$12.7 billion in funds was approved by the Legislature on April 30, 1999, and went into effect on July 1, 1999. It includes:

- *\$2.06 billion in funding for Substantial Maintenance,*
 - *\$3.31 billion in funding for Major Modifications, which both maintain and enhance the state transportation system, and*
 - *\$1.05 billion in funding for System Enhancements, which are projects submitted by local jurisdictions based on perceived needs.*
2. **KDOT should increase its emphasis and efforts to manage Interstate pavement needs by:**
 - **Emphasizing the use of routine and substantial maintenance records for the selection and scoping of Interstate pavement reconstruction projects;**
 - **Using the latest research results in conducting life cycle cost analysis to extend the design life of pavements beyond the current 20-year standard.**
 - **Increasing the funds available for Interstate pavement replacement and rehabilitation.**

*This is an **on-going** activity of KDOT. The Pavement Management System (PMS) continues to be used to collect and report condition information about the pavement surface of the Interstate and to evaluate the optimal strategy to apply rehabilitation treatments to maximize the performance benefits from dollars spent on pavements. The Performance Level for the Interstate System as measured by the PMS has improved from 77% in PL-1 and 2.1% in PL-3 in 1995 to 93% in PL-1 and 1.0 % in PL-3 in 2000. Funding for Interstate pavement needs was addressed in the CTP. It is determined at this date that the decision to increase the set-aside for Substantial Maintenance has been beneficial.*

3. **A new program, with dedicated resources, should be established to conduct a limited number of studies annually on locations or corridors that may, in the future, require major capital investment. These studies would identify major social, environmental, political and physical obstacles. They would also provide the information necessary to determine local support or lack of support for a facility.**

These determinations would then collectively provide a reading on the feasibility of an actual project being successfully programmed sometime in the future and should provide much needed information for estimating costs and resources required in the event a project is later identified and programmed.

- **This program should provide the opportunity to conduct corridor preservation activities and to enhance KDOT's access management abilities. This would include identifying locations or corridors where future major capacity improvements or new facilities will be needed or where capacity should be preserved through access management.**

*The Advanced Preliminary Engineering Program is an **on-going** activity of KDOT. There have been eight APE studies to date (including Major Investment Studies in the Kansas City and Wichita areas), and several Major Modification and System Enhancement projects had begun as APE studies. A Corridor Management Administrator position has been established along with support staff to oversee a set-aside program and to keep current on development issues.*

4. **Currently, shoulder improvements are generally made only as a part of a more broadly scoped improvement project. Shoulder improvements have very high safety benefits and also reduce maintenance work significantly. More emphasis should be placed on shoulder-type improvements after reviewing shoulder surface type and shoulder width standards.**

This subject was the focus of a K-TRAN study. The design standards have been reviewed. Shoulder improvements are often considered along with guard fence upgrades. The review of the Priority Formula, used to illustrate need in project selection, is considering revision of how shoulder conditions are considered.

5. **Timely bridge deck replacement may prevent the need for more major work to be done later. Increased funding should be provided for bridge deck replacement.**

*This recommendation has been **completed**. A policy, approved by the Program Review Committee, has been established a funding set-aside for priority bridge deck replacements, and \$12 million was allocated in the CTP.*

6. **Many major routes in Kansas are now improved to very high geometric standards interrupted only occasionally by relatively short segments that may have narrow shoulders, poor sight distance, or a combination of geometric deficiencies. These are called gaps. Gaps could also be one or two bad bridges on a long stretch of otherwise good highway or an at-grade railroad crossing that causes great delay on an otherwise efficient section of major highway. KDOT project selection methods should give emphasis to the closing of gaps on major route corridors.**

*This is an **on-going** activity of the Division of Planning and Development. The CTP will address some of these gaps through the Major Modification program.*

7. **KDOT should consider increased usage, where appropriate, of passing lanes as an economical way to increase capacity without the expense of building a four-lane divided facility.**

*A K-TRAN research study to review the effectiveness, design, and safety and operational efficiency of passing lanes was completed in October of 1999. With the approval of the Program Review Committee, passing lanes are now pursued where they can be justified based on factors such as truck traffic and growth. Nine passing lane locations have been installed between Hutchinson and Emporia on US-50 and five have been installed between Mullinville and Kingman on US-54. This is an **on-going** activity of KDOT.*

8. **Technology is an important part of the future solution to managing transportation demand and air quality problems. This is particularly true in urban areas where congestion and air quality are either existing or rapidly emerging problems, and where building additional capacity is either impossible or infeasible. KDOT should develop a strategic plan for implementing Intelligent Transportation Systems (ITS) technology, as it becomes available.**

An Intelligent Transportation Systems Unit was established in order to coordinate KDOT's efforts in this new field. A Statewide ITS Plan was completed in March 2000 that will develop ITS applications for rural Kansas as well as tie in existing urban and commercial vehicles operations applications. The purpose of this effort is to develop a detailed, short term, strategic deployment plan for ITS in Kansas and a longer term vision for ITS with more attention toward rural applications than has been given previously. The plan will be evaluated and routinely updated and maintained.

The ITS Set-Aside Fund was created in 1999 to meet the funding needs of ITS/technology related projects in Kansas. In addition a successful public/private partnership has been formed between KDOT and Digital Teleport, Inc. to develop a Fiber Optic Communications Infrastructure on more than 700 miles within the state.

Kansas City Scout is an Advanced Traffic Management System (ATMS) designed to monitor congestion and incidents on the freeway network in around Kansas City. Currently, design is taking place for the deployment of phase one on 60 miles of freeway in Kansas City. The system will cover 258 miles of freeway within the next 15 to 20 years.

The City of Wichita police, fire, ambulance, and transit service will be performing a study to implement Automatic Vehicle Location (AVL) within the city. It is envisioned that this will eventually tie into the ATMS system.

9. **KDOT should continue its efforts to streamline the process of issuing permits for oversize/overweight vehicles.**

*The Bureau of Traffic Engineering has **completed** this recommendation. KDOT was able to greatly decrease delays by moving to an annual permitting system. Permits are issued utilizing the Central Motor Carrier Permit System through the Department of Revenue. Web access and electronic filing are also on the horizon.*

Aviation

10. **The State should proceed to secure funding and implement a General Aviation Airport Development Program.**

Through the CTP, each year \$3 million of state funds will be appropriated in addition to the sponsor match requirement resulting in an estimated \$4 to \$4.5 million in improvements.

11. **The State should continue to promote aviation to encourage economic development and provide access to rural areas for emergency and specialized medical services.**

*This is an **ongoing** activity of the Division of Aviation. Within the last two years the focus has been on rehabilitation of smaller general aviation airports. Over 20 airports have been rehabilitated in this time period.*

Bicycle and Pedestrian

12. **In the KDOT design process, bicycle and pedestrian needs should be considered whenever feasible, especially in urban areas and university / college environments.**

*This **on-going** philosophy, consistent with U.S. DOT policy, is embodied in the Bicycle and Pedestrian Transportation Plan, adopted by KDOT in 1995. An example is the revision of KDOT shoulder rumble strip patterns to better accommodate bicyclists.*

13. **KDOT should continue to be a strong advocate for bicycling and pedestrian interests. The agency should continue its efforts to assure that bicycle and pedestrian-friendly transportation facilities are constructed whenever feasible.**

*This is an **on-going** activity, conducted by the Bicycle and Pedestrian Coordinator in the Bureau of Transportation Planning. KDOT funds bicycle and pedestrian projects through the Transportation Enhancement set-aside.*

14. **A Bicycle and Pedestrian Facilities Handbook, illustrating recommended design standards for bicycle and pedestrian facilities, should be developed by KDOT to assist state and local officials in planning and constructing bicycle and pedestrian facilities.**

*KDOT's Bicycle Facilities Handbook was **completed** in 1997 and is in use by KDOT and local agencies today. An update is planned to incorporate new AASHTO guidelines for pedestrians.*

Rail

15. **While there is some concern as to the appropriateness of the State subsidizing short-line railroads, these actions can benefit shippers and can reduce maintenance costs on state highways and county roads. The State should consider becoming more actively involved in financially supporting short-line railroads when a comprehensive analysis demonstrates that the support would be beneficial to the State.**

*This is an **on-going** activity of KDOT. The CTP resulted in \$3 million a year for 8 years for a Rail Service Improvement Fund providing low-interest, long-term financing for short-line railroad rehabilitation projects and acquisition.*

16. **The State should utilize a corridor approach to rail-highway improvements, with a continued emphasis on elimination of grade crossings where possible through cooperative agreements with local officials. Consideration should be given to the elimination of crossings where nearby crossings have been upgraded.**

*This is an **on-going** activity of the Coordinating Section of the Bureau of Design. There are currently more than 9 corridors under study that were chosen based upon industry and public interest. KDOT is obligating funds through the Rail Highway Safety Program. Construction projects have already been completed and new ones are being considered for signalization. A study, Kansas Grade Crossing Consolidations, was completed and published in July 1998.*

KDOT also recognized the needs of local jurisdictions by creating a Grade Separation Local Partnership Program with \$5 million in funding annually.

17. **Educational programs should be aimed at corridors with heavy train traffic. Enforcement of warning signals and gates should be a priority and violators punished.**

*This is an **on-going**, cooperative activity between KDOT, the Kansas Highway Patrol, the Kansas Corporation Commission and various railroads operating in Kansas. The program (“Operation LifeSaver”) will continue to be presented. Currently a safety brochure has been developed and educators are trained two – three times a year. Law enforcement in cooperation with Sonic Corporation is distributing gift certificates as a reward for those who obey the law and practice train safety.*

18. **KDOT should develop a plan and a process for eliminating at-grade rail-highway crossings on the National Highway System (NHS) by building grade separation structures as funding permits.**

*This activity has been **completed**. Criteria have been developed and a program has been established for the 1998-2000 Highway Construction Program. Currently, there is a project in Marysville including grade separation of two highways and a railroad,*

flood control and a bridge over the Blue River. This project is in the design phase at this time.

19. **Studies should be conducted as to the relative financial burden that short-line railroads bear with regard to installation and maintenance of grade crossing safety devices.**

The Office of Rail Affairs has studied this issue and found that no action would be effective at this time.

Public Transit

20. **KDOT should continue to foster and enhance the Coordinated Transit Districts (CTDs) to improve the effectiveness and efficiency of the delivery of transit services.**

*This is an **on-going** activity of the Office of Public Transportation of the Bureau of Transportation Planning. There are 15 Coordinated Transit Districts that have been established and are currently in operation.*

21. **KDOT should complete a rural transit needs study for Kansas outside the four metro areas of Kansas City, Lawrence, Topeka, and Wichita, and should act as a coordinator and facilitator with those areas as they develop their own transit needs assessments.**

*This recommendation has been **completed**. A rural transit needs study was completed by the Kansas University Transportation Center and published in 1999. This plan helped serve as the basis for \$6 million in public transit funds from the Comprehensive Transportation Program.*

22. **KDOT should seek congressional relief from the 13(c) labor requirements for the rural public transportation program.**

*This activity is **no longer being pursued** by KDOT. This item requires congressional action and is not likely to happen due to labor involvement.*

23. **KDOT should continue development and implementation of a Public Transit Management System (PTMS). This system should provide for better decision-making concerning management and replacement of our rolling stock fleet.**

*This activity has been **closed out**. Before penalties, for not completing the management system, were removed by the US Congress, performance indicators had been developed. Since the Congress dropped the penalties, the formal system has been dropped. KDOT had developed certain portions of the PTMS for use in its operation such as a Strategic Management Plan and a Provider Handbook.*

Water Transportation

24. **KDOT should continue to monitor any policy changes regarding navigability of the Missouri River to determine its impact on barge transportation.**

*KDOT is **monitoring** Army Corps of Engineers' policy changes.*

Intermodal Transportation

25. **KDOT should assume a more active role in intermodal planning. Programs and projects should be developed from an intermodal perspective so users are provided with a seamless integrated system of transportation.**

*This activity is **on going**. KDOT will not implement a formal Intermodal Management System. However, an intermodal report has been completed. The major product of the report is an inventory of intermodal freight facilities in the State.*

Local Issues

26. **KDOT should form a committee to review its policy on funding of construction improvements on non-Interstate City Connecting Links and to study the desirability of a payment schedule for maintenance of City Connecting Links that considers the degree to which the Connecting Link serves local traffic versus through traffic.**

The CTP increased funding for City Connecting Links to \$3000 per lane-mile.

27. **KDOT should analyze its policies for oversight on City Connecting Links with the goal of reducing oversight of local operational changes, where the impact to the State Highway System would be minimal.**

*This item has been **completed**. After a review of policies, it has been determined that there will be no changes in oversight at this time.*

28. **An established statewide program should be implemented to load rate all local bridges in a specified manner. The updated load ratings would give uniformity to reported data and give uniformity and give a consistent basis for the posting of bridges.**

*This item has been **completed**. The KDOT Bridge Design Manual prescribes a uniform process for load rating bridges.*

29. **The State needs to recognize that without an adequate tax base, local governments may not be able to solve their own bridge needs and the State may need to assist community leaders in identifying possible solutions.**

This recommendation has been addressed through the Comprehensive Transportation Program by increasing funding to the Special City-County Highway Fund.

30. **KDOT's local partnership programs should continue.**

*This is an **on-going** program of the Bureau of Local Projects and the Bureau of Program Management. The programs include KLINK resurfacing, Geometric Improvements, Economic Development, Safety, Public Transit, and Technology Transfer Programs.*

31. **KDOT should simplify and streamline, to the greatest degree possible, the processes, schedules, contacts, and knowledge required for local governments to do business with the agency.**

*This item has been **completed**. A basic guide to the available local partnership, transportation enhancement and public transit programs has been developed and distributed. In addition, most of the applications and handbooks are available on KDOT's website. The Bureau of Local Projects provides a bi-monthly newsletter to cities and counties to share information relative to the KDOT programs administered.*

32. **KDOT should ensure that Technology Transfer is provided between the State and local levels of government.**

*This is an **on-going** activity of the Bureau of Materials and Research. KDOT has an agreement with Kansas University Transportation Center to conduct a "Local Technical Assistance Program." This agreement, worth approximately \$285,000 annually, is to be funded with federal funds.*

Financing Implications

33. **In order to maximize the effectiveness of improvements to the State's transportation network, it is recommended that improvements to the State Highway System and major local projects be coordinated with affected KTA facilities and projects when possible.**

*This is an **on-going** task of the Division of Planning and Development and the Kansas Turnpike Authority. The KDOT and the KTA initiated the KAW Connects Major Corridor Study, which was published in January 2000. The purpose of the study was to examine what the future transportation demands might be in the region between Topeka and Kansas City.*

The East Topeka Interchange was also jointly coordinated with the KTA, as well as the KDOT Road Condition Reporting System.

34. **When considering financing for major improvements, consideration should be given to innovative financing methods including privatization, toll financing, or bonding.**

*This is an **on-going** activity of KDOT. Bonds have been a major funding source for the CHP and CTP. Toll options were considered in the study of the Transamerica Transportation Corridor, but conditions were not favorable for a toll facility.*

35. **Previous toll-road feasibility studies in Kansas have required that toll roads be completely self-sustaining. However, some cost-sharing arrangement between KDOT and the KTA may now prove feasible and practical. As a fact-finding effort to assist with future decisions:**

- **A study of the feasibility of toll financing, with an emphasis on new and emerging technologies and their application in Kansas, should be made; and**
- **Public opinion on the willingness to accept toll funding should be surveyed.**

*This activity has been **completed**. It has been determined that the Transamerica Transportation Corridor project was not financially feasible as a toll facility, not self-sustaining, and not capable of approaching feasibility even though the application of innovative financing options. An assessment of the trucking industry showed opposition to the tolling of existing roads.*

36. **The State should closely monitor usage of alternative fuels and the effect on transportation revenues.**

*This is an **on-going** activity of KDOT. The controversy involving the Methyl Tertiary Butyl Ether additive in reformulated gasoline has increased interest in alternative fuels and fuel additives across the nation. Ethanol is one of these alternatives. Presently Kansas provides subsidies to producers. If ethanol sales would increase dramatically in the future motor fuel taxes could be affected, thus subsequently affecting the funds Kansas receives from the Federal government.*

37. **Existing revenues, though adequate today, should be monitored to assure that they would be adequate to meet the needs of the future.**

*This is an **on-going** activity of KDOT. Statutory funding revenues currently in place are adequate to complete the CTP as announced. However, there is a concern about possible transportation funding reductions in light of state budget constraints.*

38. **Public involvement should be sought in the planning process to assure that opportunity for input is granted before projects are designed.**

*This is an **on-going** activity of KDOT. Throughout the year, the public makes thousands of contacts with KDOT employees at all levels, particularly at the Area Engineer and District Engineer level. Advanced Preliminary Engineering studies are undertaken in advance of committed construction funding on major and complex corridors, bridges or interchanges to allow more time and effort to be spent identifying environmental, social and economic is related to the location. Also see #39.*

39. **Realizing that public involvement is crucial to the Agency's operations and success, KDOT should develop a comprehensive public involvement plan. As part of that plan, a training program should be developed for KDOT employees that stresses not only when and how public involvement should be sought, but the importance of that involvement.**

*This activity has been **completed**. A public involvement plan, "Communication: A Key to Success" was developed in 1997. Eight positions were established to implement this plan. The KDOT Public Involvement Administrator (PIA) serves as a resource for the seven Public Involvement Liaisons, one for each Districts and one serving at headquarters and closely working with the Bureau of Design. One of the PIA's roles is to educate employees about their role as KDOT Ambassadors or representatives.*

40. **Where public meetings are needed and appropriate, project schedules should be developed to allow them to occur early in the design process to ensure that those most affected are involved in the early stages of development.**

41. **A mechanism needs to be developed so those individuals who will be personally affected by a transportation project are notified as soon as possible. KDOT should establish a working group to develop a workable process of notification.**

*The above two are **on-going** activities of KDOT. The Headquarters Public Involvement Liaisons is dedicated to assisting with project-specific public involvement efforts. The goal is to involve the public early and continuously throughout the design phase of a project.*

42. **KDOT, in cooperation with the Kansas Highway Patrol, has developed a voice response system to advise people of roadway conditions due to weather and construction activity. The system should be expanded over time to include other public information services.**

*This activity of the Bureau of Transportation Information in cooperation with the Kansas Highway Patrol has been **completed**. Services have been increased to handle an unlimited amount of calls to a toll-free number, 1-800-585-ROAD, as well as visual road condition information on the KDOT website. A preliminary investigation is being conducted to examine how the hotline may tie into the nationwide FCC #511 set aside.*

43. **KDOT should begin the development of an on-line computer service to provide transportation information to contractors, consultants, major shippers and other businesses, which will enhance the efficiency of their operations.**

*This is an **on-going** activity of KDOT, as it continues to implement new pieces of information on its website. The intranet/internet has recently been rearchitected. A major focus now is to move more toward Web and Intranet enablers.*

Quality of Life Issues

44. **KDOT should assist older drivers by using enhanced visibility pavement marking materials, enhanced lighting, and enhanced reflective material and increased lettering size for road signs at intersections and interchanges to more safely accommodate them.**

*This is an **on-going** activity of the Bureau of Traffic Engineering.*

- *KDOT is currently 4 years into a 10-year project to install better reflectorized material on all traffic signs.*
- *Nine million dollars has been programmed for the placement of more durable better reflectorized line stripping.*
- *A study is being conducted by KU to study letter and sign size, and contrast of sign materials on two lane super highways.*
- *A set-aside fund has been established for addressing lighting needs.*

45. **KDOT should ensure that transportation initiatives address air emission and other pollution-related concerns in a comprehensive manner and in harmony with Federal legislation with the goal of maintaining a safe environment.**

*This is an **on-going** activity of the Bureau of Transportation. KDOT is currently monitoring legislative activity at the national level. KDOT is working with Kansas City to address violations in 1995 and 1997.*

The EPA attempted to implement a new more stringent 8-hour standard for ozone. This standard is being held up by litigation but cities are preparing for the new standard. If implemented Kansas City will become a non-attainment area and Wichita will most likely become non-attainment in the near future.

With the upcoming results of the 2000 Census, once a new standard is implemented the air quality boundaries of both Kansas City and Wichita may be expanded.

46. **KDOT should assess environmental impacts of solutions to transportation needs in the planning phase, thus giving environmental concerns greater weight in the decision-making process.**

*This is an **on-going** activity of KDOT. Environmental effects are scrutinized not only in the Advanced Preliminary Engineering studies, but also in Major Corridor Studies such as the Topeka-to-Kansas City corridor study.*

47. **KDOT should continue with the Rest Area Strategic Plan to upgrade the condition of rest areas and picnic facilities located along State highways.**

*This recommendation is in the **implementation phase** of its development. Implementation of the six year Rest Area Strategic Plan is about 80% complete. This plan may have to be extended beyond the 2001 deadline pending development on the U.S. 69 issue.*

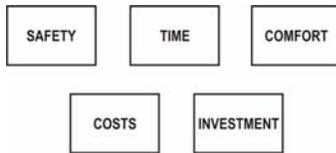
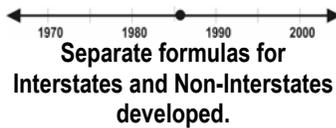
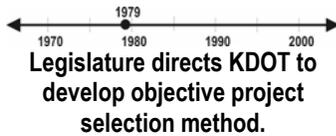
48. **KDOT should continue its efforts to integrate human behavior and traffic safety considerations into comprehensive transportation planning, supported by development and implementation of a comprehensive Safety Management System, which will provide statewide coordination and communication among appropriate highway safety groups and programs.**

*This recommendation is an **on-going** activity of Traffic Engineering and Traffic Safety. Despite the repeal of the Federal mandate requiring this system, development continued. The working group has a resource manual printed in May 1996, which has been distributed. An annual safety conference has also been established.*

Appendix F: KDOT's Priority Formulas

KDOT uses Priority Formulas to select the state's Major Modification Roadway and Priority Bridge Projects. This is an overview of the formulas and how they work. Currently, KDOT has undertaken a comprehensive review of the existing formula.

HISTORY OF THE FORMULAS



Objectives based on what is important to Kansans.

Attributes are road or bridge features that can be measured and improved by KDOT.

In 1979, the Legislature directed KDOT to develop a method of project selection that:

- Was clearly defined and used documented criteria
- Was systematic and consistent
- Was reproducible
- Used quantitative and verifiable factors in determining relative priorities.

Originally, two formulas were developed – one for roadways and one for bridges. In the mid-1980's, the single roadway formula was split into separate formulas for Interstate and Non-Interstate roadways.

*These **objectives** were designed to ensure that the formulas were based on what is important to the people of Kansas.*

The roadway objectives were:

1. Maximize user safety
2. Minimize travel time
3. Maximize user comfort
4. Minimize user vehicle operating costs
5. *Maximize preservation of investment*

The bridge objectives were:

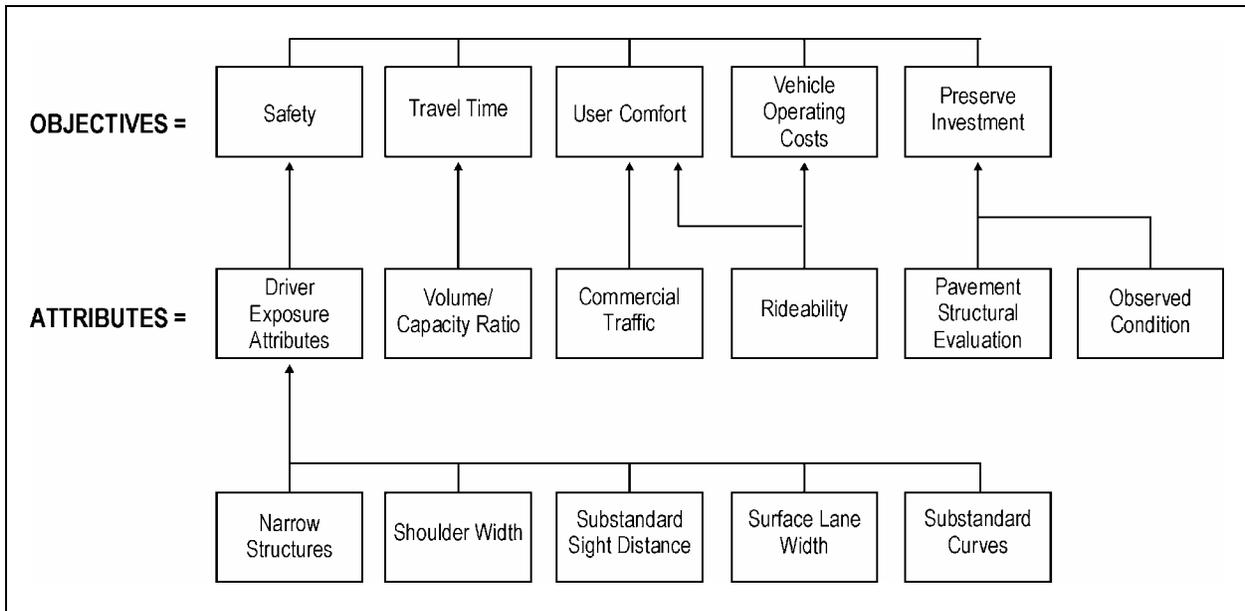
1. Maximize user safety
2. Maximize preservation of investment
3. Minimize user travel time and vehicle operating costs

*The Priority Formula Project Team had to determine how to quantify how much the improvements were needed. In the Priority Formulas, the need for improvement is expressed through **attributes**. The following characteristics were used to select and design the set of attributes to be used in both the Roadway and Bridge Priority Formulas:*

- **Complete:** The set of attributes should cover all important aspects of the problem.
- **Operational:** The attributes must be meaningful to the decision-makers and facilitate explanation to others.
- **Non-Redundant:** The attributes should be defined to avoid double counting of consequences.
- **Minimum Size:** To facilitate analysis, the set of attributes should be as small as possible while remaining complete.
- **Practical to Measure:** The attributes should be defined so that assessments can be made within reasonable constraints of time, cost, and effort.
- **Well-Defined:** The attributes should be unambiguous, they should not lend themselves to varied interpretations.
- **Relevant To Objectives:** Knowledge of the level of the attribute should provide information on how well the associated objective is being met.

Figure 1 provides a view of the objectives and attributes originally developed to create the Priority Formulas.

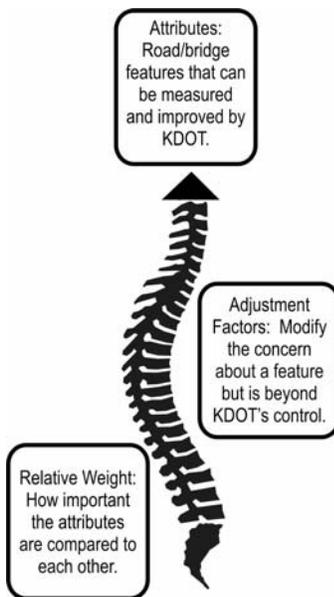
**FIGURE 1
OBJECTIVES AND ATTRIBUTES FOR
ROADWAY CONTROL SECTIONS**



HOW THE FORMULAS WORK

The priority formulas are made up of a set of attributes and adjustment factors that help determine how well a roadway or bridge is meeting the objectives of a quality transportation system. This is done on a segment-by-segment basis for roadways. These segments are called “control sections” and are usually about one mile in length. Bridges are evaluated on an individual structure basis. There are three primary components that make up the “backbone” of the priority formulas.

THE BACKBONE OF THE FORMULAS



1. **Attributes** are used to *assess* a roadway segment's or a bridge's relative need for improvement. An attribute is a roadway or bridge feature that can be measured and can be improved by KDOT. Examples would be the width of roadway shoulder or the condition of a bridge deck. The need for improvement to a given attribute is determined by a need function “curve,” for that attribute, not a raw data value of the attribute. The need function (curve) is specific to each attribute. Need values range from 0 (no need) to 1.0 (highest need). Consider for example, the attribute “shoulder width.” If a control section has a six-foot wide shoulder, the raw data value of this attribute for the control section would be six feet. To determine the need with regard to this attribute, one would compare the actual shoulder width to the design shoulder width, say ten feet, and enter the need curve at the difference and find the corresponding need.
2. **Adjustment factors** are used to *modify* the basic need scores for certain attributes. An adjustment factor in itself is not a deficiency and hence does not create a need for improvement. But it may change the degree of concern related to some specific deficiency. For example, traffic volume may be used as an adjustment factor. Traffic volume by itself does not represent any deficiency, but concern for inadequate capacity or a geometric deficiency may be greater for roads carrying more traffic.
3. Once the attributes and adjustment factors are selected for the formulas, the **relative weights** of the various attributes need to be established. Because the weights of all the attributes must add up to one, assigning relative weights to each attribute is a way to *assign value* to the attribute and takes into consideration the fact that some attributes are more important overall than others. The relative weights indicate the priority of each attribute within the formula and provide a mathematical method for assessing the relative value of the attribute within the formula.

Essentially, the Priority Formulas are a computerized priority ranking system that determines a “need score” of how badly any

Computerized ranking system compares the need for improvement of each segment to the need for improvement of all other segments.

roadway segment or bridge needs major reconstruction or replacement as compared to every other road segment or bridge. The need score takes into account not only the physical deficiencies of a roadway segment or bridge, but also the relative importance of each deficiency adjusted for such factors as traffic volume and the strategic importance of the route that carries the roadway segment or bridge. The need score does not take into account the cost of the improvement action. Thus the greater the need score, the higher the relative priority for improvement, irrespective of the cost. The projects with the highest relative priority are programmed for improvement first – *within available funding and based on scheduling considerations.*

This approach can be called a “highest need first” approach. Highest need does not mean that projects with the worst physical condition always rise to the top. Rather, it means that projects rise to the top when the need for improvement is the highest based on the combined effect of physical condition and such adjustment factors as traffic and the strategic importance of the route. Again, cost of improvement is not considered in determining the relative priorities, but the total cost of all projects selected is treated as a constraint relative to the available funding.

“Highest need first” approach looks at both physical conditions along with adjustment factors.

This need-based approach is consistent with KDOT’s long-standing philosophy that a project with a lower need for improvement should not be selected ahead of a project with a higher need simply because the cost of the improvement for the second project is higher than for the first. This philosophy reflects the perspective that it is unfair to penalize a community by not selecting a highly needed highway improvement project because construction costs are higher in that region of the state. The following schematic demonstrates how the formulas work. Following the schematic are tables showing the Non-Interstate, Interstate, and Bridge Priority Formulas that have been in use since the mid-1980’s.

**TABLE 1
NON-INTERSTATE PRIORITY FORMULA
CURRENT ATTRIBUTES AND ADJUSTMENT FACTORS**

	Attribute (Need Value)	Relative Value	Adjustment Factors							AADT ⁱ (See Table 1-1)
			Accid ent Rate (See Table 1-1)	Posted Speed (See Table 1-1)	Facility Type		Shoulder Type		Route Class (See Table 1-1)	
					Divided	Undivided	Stabilized	Unstabilized		
Driver Exposure Attributes	No. of Narrow Structures per mile	0.086	0 to 1	0 to 1					0 to 1	0 to 1
	Shoulder Width	0.089	0 to 1	0 to 1	0.4	1.0	0.60 7	1.0	0 to 1	0 to 1
	No. of SSSD ⁱⁱ per Mile	0.069	0 to 1	0 to 1					0 to 1	0 to 1
	Lane Width	0.101	0 to 1	0 to 1	0.5	1.0			0 to 1	0 to 1
	No. of SSHC ⁱⁱⁱ per Mile	0.099	0 to 1	0 to 1					0 to 1	0 to 1
	Volume/ Capacity (Maximum Default Value = 1.15)	0.091							0 to 1	0 to 1
	Commercial Traffic (Maximum Default Value = 725)	0.065			0.376	1.0	0.51 9	1.0	0 to 1	0 to 1
	Rideability	0.088							0 to 1	0 to 1
	Pavement Structural Evaluation (PSE)	0.208							0 to 1	0 to 1
	Observed Condition	0.104							0 to 1	0 to 1
Sum of All Weights	1.000									

**TABLE -1A
NON-INTERSTATE PRIORITY FORMULA
ADJUSTMENT FACTORS**

Accident Rate	Adjustment Factor	Posted Speed	Adjustment Factor	Route Class	Adjustment Factor	Capacity – Adjusted AADT ^{iv}	Adjustment Factor ^v
High	1.0	≥55 mph	1.0	A	1.0	20,000	1.0
Medium	0.858	<55 mph	Varies from 0 to 1	B	0.9	10,000	0.925
Low	0.734			C	0.7	6,000	0.895
				D	0.5	2,000	0.865
				E	0.3	0	0.0850

ⁱ Average Annual Daily Traffic - The number of vehicles per day on a roadway segment averaged over one year.

ⁱⁱ Substandard Stopping Sight Distance - A stopping distance for a vehicle that is less than the agency standard. The standard is a function of the design speed which is based on the Kansas Route Classification and AADT group.

ⁱⁱⁱ Substandard Horizontal Curve - A sharp curve on a roadway segment on which the design speed cannot be maintained; the segment has a posted speed limit that is less than the design speed.

^{iv} Average Annual Daily Traffic adjusted for number of lanes and capacity so that different roadway types can be evaluated on a comparable basis.

^v Adjustment factor is a straight line formula; numbers are shown for reference only.

TABLE 2
INTERSTATE PRIORITY FORMULA
CURRENT ATTRIBUTES AND ADJUSTMENT FACTORS

Attribute (Need Value)	Rel. Weight	Adjustment Factors					
		Facility Type		Shoulder Type		Route	AADT ¹ (See Table 1-1)
		Divided	Undivided	Stabilized	Unstab.	Class (See Table 1-1)	
Commercial Traffic	0.140	0.376	1.0	0.519	1.0	0 to 1	0 to 1
Rideability	0.189					0 to 1	0 to 1
Pavement Structural Evaluation (PSE)	0.447					0 to 1	0 to 1
Observed Condition	0.224					0 to 1	0 to 1
Sum of All Weights	1.000						

TABLE 3
BRIDGE PRIORITY FORMULA
CURRENT ATTRIBUTES AND ADJUSTMENT FACTORS

Adjustment Factors		
Attribute (Need Value)	Rel. Weight	AADT ¹ (See Table 1-1)
Bridge Width (Driver Exposure Attribute)	0.222	0 to 1
Deck Condition	0.169	0 to 1
Structural Condition	0.359	0 to 1
Operating Rating	0.250	0 to 1
Sum of All Weights	1.000	

WHY THE FORMULAS ARE IMPORTANT

Highway networks represent billions of dollars of investments.

Highway networks are a major capital asset that represents billions of dollars of investment. Like any other capital asset, a highway network needs continued investment to maintain, modernize, and expand. Maintenance is needed to *repair* and *preserve* the original condition of various components of the network that deteriorate over time as a result of continued usage and environmental exposure. System modernization is needed to *upgrade* the original condition to modern standards, which may be different from those prevalent at the time of the original construction of the network. System expansion is needed to provide *new* highway facilities that can accommodate and support population and economic growth in the state.

Resources are limited so projects must be prioritized.

Because investment resources are limited, transportation needs and projects must be prioritized across the state. To address these various needs, KDOT uses different prioritization methods to select projects based on the type of project being considered. For example, the way to prioritize roadway segments for maintenance or expansion isn't necessarily appropriate for prioritizing projects for modernization. Consequently, different processes are necessary depending on the type of projects being prioritized. The KDOT Priority Formulas prioritize *modernization* projects.

Prioritization process is based on what that work category is trying to achieve.

Most state departments of transportation make prioritization decisions based on a combination of some quantitative data and subjective judgments of policy makers. These judgements are often shaped by public opinion and the advocacy positions of stakeholders. The subjective nature of the decisions can lead to questions as to whether the investments are being made in a fair and equitable manner, and whether they are unduly influenced by political considerations.

KDOT's objective, needs-based approach ensures all projects are evaluated on the same basis.

In contrast, the KDOT Priority Formulas are a needs-based, data-driven process that removes subjective influences from the project selection process. The advantage of the approach used by the KDOT Priority Formulas is that the formulas objectively assess the need for improvements. The formulas use a *multi-attribute need function* to properly address the tradeoffs among multiple-competing objectives. Consequently, no region of the state has to worry that they are not being fairly treated. While not all worthy projects can advance to construction due to limited resources, all projects are evaluated on the same basis.

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- ² Kansas Department of Transportation, 2002 Strategic Management Plan
- ³ 2000, US Census Bureau
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- ⁷ Transportation in an Aging Society, Special Report 218, TRB
- ⁸ Transportation in an Aging Society, Special Report 218, TRB
- ⁹ 2000, US Census Bureau
- ¹⁰ 2000, US Census Bureau
- ¹¹ 2000, US Census Bureau
- ¹² 2000, US Census Bureau
- ¹³ 2000, US Census Bureau
- ¹⁴ TRB Refocusing Transportation Planning for the 21st Century, Conference Proceedings 20, 2000. p 139
- ¹⁵ TRB Refocusing Transportation Planning for the 21st Century, Conference Proceedings 20, 2000. p 139
- ¹⁶ Selected Information on the State of Kansas, Bond Official Statement
- ¹⁷ PRIMER:GASB 34, pp 7-12
- ¹⁸ Harris Poll
- ¹⁹ 2000 Kansas Railroad Safety Statistics, Kansas Corporation Commission
- ²⁰ Mid-America Regional Council, Long-Range Transportation Plan
- ²¹ Wichita-Sedgwick County, Long-Range Transportation Plan
- ²² Topeka-Shawnee County Long-Range Transportation Plan
- ²³ Lawrence-Douglas County, Long-Range Transportation Plan
- ²⁴ St. Joseph, Long-Range Transportation Plan
- ²⁵ NCHRP Report 456, TRB, Guidebook for Assessing the Social and Economic Effects of Transportation Projects, 2001 p. 108
- ²⁶ www.FHWA.gov
- ²⁷ Road Safety Audits, Bureau of Transportation Engineering, KDOT
- ²⁸ www.teriin.org, Indian Energy Sector, March 2000
- ²⁹ "The Condition of Our Nation's Roads", The Road Information Program (TRIP), 2001
- ³⁰ Average Annual Daily Traffic – The number of vehicles per day on a roadway segment averaged over one year.