

Use of SHRP2 Products in the Real World

Transportation Research Board 93rd Annual Meeting – Washington, D.C. January 12, 2014

Presented by: Matt Shands Minnesota Department of Transportation

SHRP 2 Project C-18: Pilot Test the Collaborative Decision Making Framework Including a Self-Assessment Methodology

- GR Complete Streets Plan
 - Developed a collaborative Complete Streets Plan utilizing the active participation of a wide variety of stakeholders
- TCAPP Evaluation
 - To conduct a rigorous analysis / evaluation, and to identify specific opportunities for improvement to the TCAPP tool.



Project Partners and Stakeholders















A Better State of Health

SHIP Statewide Health Improvement Program









Federal Highway Administration



Complete Streets Plan of Grand Rapids

 In addition to the Complete Street policy recommendations that were incorporated into the city's Comprehensive Plan, TCAPP provided guidance on collaborating on many site-specific improvements.

















Favorite TCAPP Functions

- "Decision Making Questions" Tab
 - "Who should be involved?" and "What issues need to be considered?"
 - Identify opportunities and deficiencies in the system
 - Provided list of questions to be posed in stakeholder meetings and focus groups

http://transportationforcommuniti	es.com/shrpc01/kdp_step/21/0/2		
ew Favorites Tools Help			
👍 🙋 Free Hotmail 🖉 Web :	Slice Gallery -		
portation for Comm 🗴 💋 Ask.e	com - What's Your Quest		
ics Integration Deci	sion Making Questions Case Study Examples Technical Support Special Topics		
Policy Questions			
Questions about	Are all of the partmany willing to versio expand in the planning process?		
purpose and roles	Are all of the partners willing to remain engaged in the planning process?		
	Do stakeholders agree on the potential use of P3 if there is a need for innovative sources of		
	mancing or revenues?		
Questions about	Does this reflect a common understanding of the region's vision and goals?		
stakenoiders	How are stakeholder goals considered?		
	How did public input influence the visions and goals? (Not how the information was gathered, but how the information included the decision of the vision and goals.)		
Questions about the			
transportation process	What data are available from past fiscal analyses regarding availability of funding and revenues and how have these changed since the last plan?		
supporting the decision			
Questions about other phases	How does this reflect previously established vision and goals?		
	Are there priority areas for conservation/restoration/mitigation that should be considered in the vision and goals?		
	Are these visions and goals broad enough to address the transportation system, community, and human and natural environment?		

Favorite TCAPP Functions

- "Technical Support" Tab
 - Helped us identify key data needs.

	ommunities - COK-2 -	Windows Internet Explorer	🖌 🔏 Handwriting 🎓 Drawing Pad 🙎	
🕑 🔻 🖉 http://w	ww.transportationforcomm	unities.com/shrpc01/kdp_step/21/0/1	3 💽 🔂 🐓 🔀 Live Search	
Edit View Favo	orites Tools Help			
Favorites 🛛 🔒 🧧	🖣 Free Hotmail 🧧 Web Sl	ice Gallery 🔻		
ansportation for Comm	nunities - COR-2		🚹 🔻 🔂 👻 🖃 🖶 Yage 🗸 Safety 🗸 To	ols 👻 🔞
Basics I	Integration Decis	sion Making Questions C	ase Study Example 7 Technical Support St ecial Topics	_
Suppo	orting Data for t	the Key Decision		
O The f	following is a list of d	ata needed to support the k	ev decision. Practitioners collect this information for decision makers to	
conside	r. You may add to thi	is list using the comment box	at the bottom of the page.	
			Transportation deficiencies	
		Long Range Planning	Related public input for the corridor from long range plan public	
From	other phases of		involvement.	
	transportation decision	Programming		
transp		riogrammig	No Specific Data	
transp	making	Corridor Planning	No Specific Data Data gathered at scoping should be re-considered at this key decision	
transp	making	Corridor Planning	No Specific Data Data gathered at scoping should be re-considered at this key decision No Specific Data	
trans	making	Corridor Planning Environmental Review	No Specific Data Data gathered at scoping should be re-considered at this key decision No Specific Data Zoning data	
	making	Corridor Planning	No Specific Data Data gathered at scoping should be re-considered at this key decision No Specific Data Zoning data Special covenants, easements or restrictions along the corridor	
	making	Corridor Planning Environmental Review Land Use and Smart	No Specific Data Data gathered at scoping should be re-considered at this key decision No Specific Data Zoning data Special covenants, easements or restrictions along the corridor Land use context to be included in the corridor planning process	
	making	Corridor Planning Environmental Review Land Use and Smart Growth	No Specific Data Data gathered at scoping should be re-considered at this key decision No Specific Data Zoning data Special covenants, easements or restrictions along the corridor Land use context to be included in the corridor planning process Validation of the consistency between the LRTP and adopted land use plan in the MPO area	
	making	Corridor Planning Environmental Review Land Use and Smart Growth	No Specific Data Data gathered at scoping should be re-considered at this key decision No Specific Data Zoning data Special covenants, easements or restrictions along the corridor Land use context to be included in the corridor planning process Validation of the consistency between the LRTP and adopted land use plan in the MPO area Development trends and growth patterns	
	making	Corridor Planning Environmental Review Land Use and Smart Growth	No Specific Data Data gathered at scoping should be re-considered at this key decision No Specific Data Zoning data Special covenants, easements or restrictions along the corridor Land use context to be included in the corridor planning process Validation of the consistency between the LRTP and adopted land use plan in the MPO area Development trends and growth patterns	

Value of TCAPP at MnDOT

- 1. Cultivated a <u>culture of collaboration</u>. Created a synergy with the right people together at the right time.
- 2. <u>Transformed the perceived role of MnDOT</u> from inflexible behemoth to good neighbor.
- MnDOT <u>TCAPP tool (and the "spirit of collaboration")</u> <u>is being used for other planning initiatives</u> (International Falls, Zumbrota, Duluth)
- 4. Learned that <u>collaboration is important, not just</u> with external partners and stakeholders, but internally as well (District staff, modal staff)



Lessons Learned: Applying the TCAPP tool in Minnesota

- Take advantage of opportunities to promote the tool.
 - With individuals
 - To small working groups
 - At conferences





SHRP 2 Project C-33: Pilot Projects to Validate the Results of T-PICS

- Address the diversity of the tool's registry of case studies that T-PICS utilizes to predict economic impacts.
 - 2. Address the relationship between the economic impact output from the case study examples to the proposed project whose economic potential is being estimated.



C33A Project Team

- Matt Shands MnDOT project manager
- John Wilson MnDOT economist
- Neal Young Mn Dept. of Employment and Economic Development (DEED)
- Weston Merrick DEED
- Michael Iacono University of Minnesota
- Scott Nystrom Regional Economic Models, Inc. (REMI)
- Ahmed Mustafa REMI



SHRP 2 - Project C33 -Validating the Results of T-PICS

Transportation Project Impact Case Studies (T– PICS) is a web–based tool that allows the user to gather useful information on the potential economic impacts of a proposed transportation project.

www.tpics.us

Match Models to Planning Needs



Ref: SHRP2 Collaborative Decision-Making Framework

(Graphic courtesy of Economic Development Research Group, Inc.)













T-PICS Basics: Case Search Module



Compare	Title	Description	Project Type	State	BEA Region	Project Cos (2008)
	Commerce Parkway Interchange	The Commerce Parkway Interchange is one of three interchanges connecting Hays to Interstate 70 (I-70), which is Kansas's most important east-west travel route.	Interchange	KS	Great Lakes/Plains	\$4,732,710
	I-435 & Nall/Roe Ave. Interchange	The Nall/Roe Avenue Interchange, built specifically to keep Sprint office jobs in the Kansas City area, provides east-west access from Interstate 435 to Nall Avenue, which previously bridged Interstate 435, and reconfigures the interchange with Roe Avenue. The project also included widening I-435 from 6 lanes to 8 lanes to accommodate traffic growth.	Interchange	KS	Great Lakes/Plains	\$68,377,068
	<u>I-394 Minnesota</u>	I-394 Minnesota is an eight-mile stretch of US Highway 12 connecting downtown Minneapolis with its central western suburbs. It was built to accommodate future growth in Minneapolis' central western suburbs.	Widening	MN	Great Lakes/Plains	\$520,894,35













Case Search generates useful project information

- Characteristics
- Setting
- Pre-Post Conditions
- Narrative
- Impacts
- Images

Commerce Parkway Interchange

Pre/Post Conditions Narrative Impacts Images
Pre/Post Conditions Scale:

Local

County

State

The Commerce Parkway
Interchange is one of three
interchanges connecting Hays
to Interstate 70 (I-70), which
is Kansas's most important
east-west travel route.

Print Current Tab

Related Websites:

Attachments:

ктос

Transportation Infrastructure Investments and Economic Growth -Five Kansas Case Studies

Measure	Pre-Project	Post-Project	Change	% Change
Personal Income	\$36,848.1	\$35,370.1	-\$1,478	-4.01%
Economic Distress	0.57	0.59	0.02	3.85%
Total Num. of Jobs	18,950	23,718	4,768	25.16%
Population	26,553	27,373	820	3.09%
Property Value	N/A	\$117,885	N/A	N/A
Business Sales (\$M's)	N/A	\$2,039.48	N/A	N/A
Tax Revenue (\$M's)	N/A	N/A	N/A	N/A
Density (ppl/sq mi)	59.41	30.42	-29	-48.81%

Commerce Parkway Interchange

The Commerce Parkway Interchange is one of three interchanges connecting Hays to Interstate 70 (I-70), which is Kansas's most important east-west travel route. Characteristics Setting Pre/Post Conditions Narrative Impacts Images

COMMERCE PARKWAY INTERCHANGE

1.0 SYNOPSIS

2.0 BACKGROUND

The Commerce Parkway Interchange is one of three interchanges connecting Hays to Interstate 70 (1-70), which is Kanass's most important east-west travel route. After the parkway interchange was completed in 1-95, fis location prompted the development of the Airport Industrial Park. The construction was supported by a strong coalition of local business leaders and banks with the intention of improving access to developable land slated for industrial and residential development. Over the last tern years, the Commerce Parkway has stimulated the growth of Hays' economy, adding an estimated 745 jobs from 1995 to 2006. Additionally, an arterial route has been built to connect downtown Hays with the Commerce Parkway, furthering opportunity for development within the corridor in wears to come.

Print Current Tab

2.1 LOCATION & TRANSPORTATION CONNECTIONS

Related Websites: KTOC

Attachments:

Transportation Infrastructure Investments and Economic Growth -Five Kansas Case Studies Hays, Kansas is the county seat of Ellis County and is located at the crossroads of 1-70 and US-183. Convenient accesses to 1-70 has ensured Hays' role as a retail and manufacturing hub for northwestern Kansas. 1-70 is the most important east-west travel route in Kansas, connecting Hays with Deriver, Colorado to the west and Kansas City, Kansas to the east. The Commerce Parkway was the last of three interchanges built in Hays, and is the one farthest to the east. Vine Street, two miles west of Commerce Parkway, supports the heaviest traffic use and provides access to tigo kor teali, gas stations, and restaurants. Nevertheless, Commerce Parkway is the interchange closest to Hays Regional Airport and Airport Industrial Park, located 2.5 miles to the south.

2.2 COMMUNITY CHARACTER & PROJECT CONTEXT

Hays, Kansas is the largest city in northwestern Kansas with an approximate population of 20,000. In the 1980's, the city of Hays and Ellis County were primarily rural, and tended to focus on farming, agriculture, and oil extraction. In the late JB90's, the Hays region experienced declining economic fortunes. Then, to further the economic hardship, when the Commerce Parkway project was proposed, an oil business, Baxter Travenol Laboratories, which employed about 1,200 people at its peak, closed down.

During the late 1980's and early 1990's the city decided to focus on diversifying its industrial base because of economic conditions. The local economy was also particularly vulnerable from dosure of the Baxter-Travenol Laboratories, and the city decided that bringing in a diverse industrial base was important. As the city became more suburbanized, it attracted a variety of manufacturing industries and also began supporting a regional medical center, a university, and several major bip/box retail chains. The industrial, commercial, and retail growth in recent years has established kays as the retail and trade center for

















T-PICS Basics: My Project Tools Module





Estimated AADT:

	Jobs	Wages (mil.)	Output (mil.)
Direct Impacts	350 - 583	\$16.4 - \$27.3	\$52 - \$86.7
Supplier and Wage Impacts	201 - 335	\$9.5 - \$15.8	\$29.5 - \$49.2
Total Impacts	551 - 918	\$25.9 - \$43.1	\$81.6 - \$136

Minnesota Interstate 94 / Opportunity Drive Interchange

Opportunity Drive Interchange					
TPICS	Employment	Wages (\$1,000)	Output (\$1,000)		
Direct Impacts	850 - 1 410	\$39,720 -	122,798 -		
	050 1,410	\$66,200	\$204,664		
Supplier and Wage	560 - 930	\$26,215 -	\$81,047 -		
Impacts	200 - 220	\$43,692	\$135,078		
Total Impacts	1 410 2 240	\$65,935 -	\$203,845 -		
	1,410 - 2,340	\$109,892	\$339,742		
Method	2: Regional Econ	ometric Models, Inc.	Run		
Direct Impacts	500	\$35,729	\$155,533		
Supplier and Wage	1 389	\$43 921	\$148 216		
Impacts	1,505	\$75,521	\$140,210		
Total Impacts	1,889	\$79,650	\$303,749		
Comparison (Method 2 to TPICS: Within Range, Under, or Over)					
Direct Impacts	Under	Under	Within		
Supplier and Wage	Over	Over	Over		
Impacts	over	Over	over		
Total Impacts	Within	Within	Within		

Potential T-PICS Applications in Minnesota

- Transportation funding programs targeting economic development objectives:
 - Transportation
 Economic Development
 (TED) Program (2010, 2012, 2013 – \$100 million)
 - Corridors of Commerce Program (2013 \$300 million state bonding authority)

Recommended Uses of T-PICS (by the Economic Development Research Group, Inc.)

- Early-stage policy or strategy development—T-PICS can identify the magnitude and types of impact tradeoffs to be considered
- Early-stage "sketch planning" processes—T-PICS can identify the types of local barrier and success factors that will need to be addressed in later, more detailed planning steps
- Public hearings—the case studies provide a way of responding to the hopes of proponents and fears of opponents, with information on the range of impacts that have actually occurred in the real world.

Transportation Economic Development (TED) Program Overview

- Collaboration between MnDOT and DEED for transportation infrastructure improvement projects that support economic development
- Seeking projects that will assist development of new business or expanding existing businesses
 - Target industries: manufacturing, technology, warehousing and distribution, research and development, agricultural processing, bioscience, tourism/recreation, industrial park development
- Projects should improve the statewide transportation network

Corridors of Commerce Program Objectives

- Construction, reconstruction and improvement of trunk highways
- Provide additional highway capacity on segments where there are bottlenecks in the system
- Improve the movement of freight and reduce barriers to commerce.

Matt Shands

Minnesota Department of Transportation <u>Matt.shands@state.mn.us</u> (651) 366-4893

SHRP 2 Project L38

Pilot Testing of Reliability Data and Analytical Products SHRP 2 Project Examples

TRB Annual Conference January 12, 2014

Introduction

- SHRP 2 = Strategic Highway Research Program
 - Authorized by Congress to address some of the most pressing needs related to the nation's highway system
 - Safety
 - Renewal
 - Capacity
 - Reliability

SHRP 2 Project L38

- Numerous reliability studies completed to-date
- RFP issued for L38 Pilot Testing of Reliability Data and Analytical Tools
- MnDOT submitted proposal in October 2012, in partnership with SRF
- Minnesota selected as 1 of 4 pilot sites from among 7 proposals
 - Others are Florida, California, Washington

Reliability tools under evaluation at SHRP 2 pilot test sites

Prioritizing Solutions: Economic benefits of transportation improvements

Prioritizing Solutions: Cost-effectiveness of improving reliability

Project L02 Project L08 Project C11 **Establishing Monitoring** Non-Recurrent Improved Economic Systems for Travel Time **Congestion Factors in** Analysis Tools Reliability **HCM Methods** X **Cost-Benefit Defaults** Cost - Benefit Defaults ? 15.68 Value of Time(VOT), \$/hr Г 0.793 **Reliability Ratio** Value of Reliability(VOR), \$/hr 12.43 % **Discount Rate** Done

Twin Cities Highways

Instrumented System and Study Corridors

TH 100 Northbound Corridor

Recent Changes:

- 2005 Additional lane near TH 7 and Minnetonka Blvd
- 2008 Diversion route following I-35W bridge collapse
- Late 2008 Ramp metering deployed north of I-394

Reliability – Travel Times

Date (yyyymmdd)

Reliability – CDF Curves

Reliability Non-Recurring Conditions

Reliability - Delay by Condition

TH 100 NB – Delay

TH 100 NB – Delay

Example Project

I-94: I-494 to TH 101

Example Application

Travel Time Reliability Evaluation

- Measures/Data Sources
 - Corridor Traffic Volumes (VMT)
 - Average Travel Times
- Analysis Timeframe/Location
 - Every 5–minute period during 2012
 - -I-94 westbound from I-494 to TH 101

Existing Conditions

Existing Conditions

01/12/2014

Existing Conditions

Agency funding model examples from L05 Guide.

- How many/what type of funding sources does your agency receive for system investments?
- What programs (pots) does your agency provide or manage with those funds?
- What does your agency do to allocate funding among programs?

- What data sources are used to inform the allocation process?
- How does your agency prioritize projects/corridors within each funding category?
 - Data sources
 - Analysis tools
- How are alternatives evaluated within corridors identified for funding?
 - Data sources and tools

- Can we use evaluation of travel time reliability to influence decision– making at each/any of these levels?
- What audience(s) is your agency responsible for reporting to?
 - What type of tools can be used to communicate with these audiences?

Discussion

- I94 example for project work
 - Education/communicate issues
- LO 7 tool predictability tools
 - Magnitude of effort
- Pie charts for prioritization
 - Identify specific issues
- Potentially with specific programs
- Scoping vs. Programing, due to corridor based/magnitude

Questions?

Thank you!

