Case Study:

Assessing Sustainability in the St. Joseph Area Transportation Study Organization's Long-Range Planning

St. Joseph, Missouri Metropolitan Area

Lead Agency: St. Joseph Transportation Study Organization (SJATSO), the St. Joseph Area Metropolitan Planning Organization
INVEST Module: System Planning and Project Development
Link: http://stjoempo.org/projects/

SJATSO first evaluated the regional long-range plan, the 2040 Metropolitan Transportation Plan (MTP), using the System Planning Module. The purpose of the 2040 MTP evaluation was to provide feedback on areas of opportunity for improvement in the 2045 MTP update, currently underway and due to be completed Fall 2019. By identifying areas for improvement staff was able to provide recommendations for increasing sustainability considerations within the long-range plan, which drives the implementation of transportation projects at the local level. The Project Development Module was also used to evaluate three design concepts for the I-229 double decker bridge which is due for major repairs.

System Planning Module: 2045 MTP

While the 2040 MTP acts as a convenient resource for project sponsors and emphasizes multimodal projects as one way to decrease congestion, increase public health and enhance workforce development there are still many areas of opportunity for improvement. One of the greatest is the implementation of the goals and recommendations within the 2040 MTP in local projects, which is currently done through the Transportation Improvement Program (TIP) compliance review. For every transportation project that is proposed for inclusion in the TIP, the Technical Committee reviews the components of the project in relation to a list of criteria as outlined in the 2040 MTP to ensure the goals and vision are adhered to. The expectation beginning this evaluation was that INVEST would help identify areas the 2040 MTP could improve its analysis of sustainability measures, which would ultimately translate to the TIP compliance review criteria.

In 2017 SJATSO coordinated a workshop of various stakeholders from both the MPO's committees as well as community stakeholders, attempting to provide a wide breadth of knowledge that related to the individual components of sustainability. Participants included staff from member cities such as engineers and planners, transit agency representatives, and various others who represented economic development and social service agencies. INVEST version 1.2 was the most up-to-date version when

this workshop was conducted. Staff provided a hard copy of the System Planning for Regions (SPR) Scorecard and Questions. In addition to the scorecard, staff provided a notes sheet instructing groups to take notes for each criterion, specifically asking them to note criteria that are ill-defined, confusing, or not applicable to the 2040 MTP and why so that feedback could be gathered improving future iterations of the INVEST tool.

The total score for the 2040 MTP is shown below:

Criterion	Title	Score
SPR-01	Economic Development and Land Use	7
SPR-02	Natural Environment	1
SPR-03	Social	4
SPR-04	Bonus	10
SPR-05	Access and Affordability	11
SPR-06	Safety Planning	1
SPR-07	Multimodal Transportation and Public Health	8
SPR-08	Freight and Goods Access and Mobility	6
SPR-09	Travel Demand Management	1
SPR-10	Air Quality and Emissions	1
SPR-11	Energy and Fuels	0
SPR-12	Financial Sustainability	13
SPR-13	Analysis Methods	4
SPR-14	Transportation Systems Management and Operations	0
SPR-15	Linking Asset Management and Planning	1
SPR-16	Infrastructure Resiliency	9
SPR17	Linking Planning and NEPA	4
	Total	81

Overall, staff felt that there are many opportunities to increase the score with the 2045 MTP, developing recommendations that will be used in the current 2045 MTP update:

- **Demonstrate Process.** Many criteria lost points because the MTP failed to demonstrate the process it follows to develop goals and engage with stakeholders.
- **Highlight Connections.** The MTP should better include and reference outside plans such as the Statewide Highway Safety Plan, local non-motorized plans, and economic development plans.
- **Data Management**. A greater discussion of the travel demand management goals, objectives and performance measures needs to be included; including how data is evaluated and updated.
- **Reduce Length.** It was suggested that the plan be reduced in length by at least half, keeping it under 100 pages so that it was more accessible and likely to be implemented at the local level.

Project Development Module: I-229 Design Scenarios

The I-229 Bridge, a double decker bridge, located in downtown St. Joseph, Missouri is an important part of the regional movement of freight and people as it acts as a direct route to the stockyards, rail yards, port and downtown businesses. The Missouri Department of Transportation (MoDOT) has determined that the bridge has reached a point in its lifespan to begin planning for either major repairs or reconstruction.

SJATSO organized a workshop in the summer of 2018. Due to the technical aspect of the project, participants included engineers, environmental specialists and planners from the City of St. Joseph and MoDOT for the review of the I-229 alternatives. INVEST version 1.3 was the most up-to-date version when this workshop was conducted. Staff provided a hard copy of the System Planning for Regions (SPR) Scorecard and Questions. Similar to the first workshop, staff also provided a notes sheet asking participants to indicate suggestions for improvement on specific criteria.

The area engineer at the MoDOT Northwest District produced three design concepts for the I-229 Bridge based on previous riverfront studies and projects. The concepts presented to staff included:

1. No Build – Maintain As-is. MoDOT would maintain the structure as is, with an initial investment, estimated at 50 million, to bring the structure to a state of good repair that, with regular maintenance, could last another 25 years. This would maintain current access to downtown St. Joseph and the stockyards south of 36 Highway.

2. Remove I-229 Completely. MoDOT would remove approximately 1.4 miles of I-229, ending access south of downtown at 36 Highway and north at St. Joseph Avenue. This would either redirect freight traffic to local roads as they navigate south through downtown to the industrial areas or redirect them down I-29 which runs along the eastern edge of St. Joseph.

3. Lower to At-grade. MoDOT would lower the structure to an at grade facility with reduced access to downtown and two smaller bridges where it crosses over the railroad lines.

This evaluation was different from how many agencies have used the Project Development module in the past. The project was at the conceptual stage of planning; meaning much of the criteria could only be answered hypothetically based on standards of practice. From the examples of other agencies who have used the Project Development Module of INVEST to evaluate a project, the majority of projects were either complete, or near completion. The value and insight gained in evaluating a project upon completion is that the agency can then take those lessons learned and apply them to the next similar project. However, because of the funding shortfall in Missouri, MoDOT does not anticipate another project in the Northwest District similar to the I-229 Bridge. Therefore, staff was curious to see if INVEST could be used at the front end of a project's concept and design to better inform the planning process moving forward, rather than in hindsight.

During the workshop the participants scored each scenario with the mindset of what they would do for each scenario given past practices and current standards. For both scenario 1 and scenario 2 participants agreed several criteria were not applicable. Due to this the points available and scores were converted to percentages based on their individual points available section for better comparison. While all three scenarios were close, the highest score was scenario 3.

The total score for each scenario is shown below:

Criterion	Title		Scenario 1	Scenario 2	Scenario 3
		Points Possible	Score	Score	Score
PD-02	Lifecycle Cost Analyses	3	1	1	2
PD-03	Context Sensitive Project Development	10	2	6	8
PD-04	Highway and Traffic Safety	10	0	0	0
PD-05	Educational Outreach	2	2	0	1
PD-06	Tracking Environmental Commitments	5	2	2	2
PD-07	Habitat Restoration	7	0	4	4
PD-08	Storm water Quality and Flow Control	6	5	3	3
PD-10	Pedestrian Facilities	3	NA	0	3
PD-11	Bicycle Facilities	3	NA	0	3
PD-12	Transit and HOV Facilities	5	0	NA	0
PD-14	ITS for System Operations	5	2	NA	0
PD-15	Historic, Archaeological, and Cultural Preservation	3	0	0	0
PD-17	Energy Efficiency	8	2	1	1
PD-18	Site Vegetation, Maintenance and Irrigation	6	NA	0	1
PD-19	Reduce, Reuse and Repurpose Materials	12	4	NA	2
PD-20	Recycle Materials	10	0	NA	3
PD-22	Long-Life Pavement	7	NA	NA	7
PD-23	Reduced Energy and Emissions in Pavement Materials	3	NA	NA	0
PD-24	Permeable Pavement	2	NA	1	0
PD-25	Construction Environmental Training	1	1	0	1
PD-26	Construction Equipment Emission Reduction	2	0	1	0
PD-27	Construction Noise Mitigation	2	1	5	1
PD-28	Construction Quality Control Plan	5	5	1	5
PD-29	Construction Waste Management	4	1	NA	1
PD-30	Low Impact Development	3	0	NA	2
PD-32	Light Pollution	3	NA	NA	0
PD-33	Noise Abatement	5	0	NA	0
	Total	135	28	26	50
		108	25.93%		
		78		33.33%	
	Percentage	135			37.04%
*points possible exclude NA points					

The committee struggled with the concept of scoring hypothetical scenarios and if a criterion or its explanation was not explicit they struggled to evaluate it. Vice versa, if criteria were explicit, they were very rigid in assigning points, only awarding points if a scenario followed the criterion to the letter, oftentimes getting caught on specific phrases such as "above and beyond". The I-229 committee was vastly different in composition to the MTP committee, demonstrating how two different audiences would approach the tool. Going forward, staff has found it better to have a better mix of the two mindsets in committees so that there is better balance to the discussion and scoring.

Next Steps

Overall, staff felt that there are many opportunities to increase the score with the 2045 MTP update by better demonstrating the processes and plans it already has in place. A copy of this final report will be shared with SJATSO's contracted consultant leading the 2045 MTP update so that the recommended improvements can be included. Upon completion of the 2045 MTP staff anticipates reevaluating the MTP using INVEST to see what areas were improved based on this analysis.

The results of the three alternatives for I-229 will be given to the consultants leading the Environmental Assessment to be included in their process. It is the intent of staff to conduct another evaluation of the I-229 double decker bridge project once the project is nearer completion. In the meantime, staff is exploring ways to add concepts from INVEST in the MPO planning process for a proactive evaluation of projects in initial concept and design phases.

Key Outcomes of Using INVEST

- Areas of how to improve the 2040 MTP were highlighted, not only in terms of sustainability but also general user-friendliness and format.
- A list of detailed improvements based on criteria was developed and will be used in the 2045 MTP update.
- An expanded group of stakeholders were engaged for scoring, resulting in productive conversations about the various aspects of sustainability and its role in transportation.
- Evaluation of I-229 scenarios stimulated conversation and provided a non-biased framework to discuss the pros and cons of various design alternatives.
- Recommendations for improving INVEST were provided so that smaller MPOs could use it more effectively.