Case Study Report for the Sun Corridor Megaregion Value Impact Analysis Toolkit

The Sun Corridor

Source: National Economic Partnerships Pilot Program, Sun Corridor Value Impact Analysis Webinar

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1. **Background and Overview of the Case Study**

The Sun Corridor megaregion consists of Maricopa, Pima, and Pinal counties in Arizona and their associated MPOs: Maricopa Association of Governments (located in Phoenix in Maricopa County), the Pima Association of Governments (located in Tucson in Pima County), and the Sun Corridor MPO (located in Casa Grande in Pinal County). The main goal of the Sun Corridor Value Impact Analysis (VIA) project was to develop a methodology and toolkit to quantify the economic value added by large, high-capacity transportation investments. The toolkit will help regional partners understand the impacts of existing and proposed transportation investments, including economic development impacts (e.g., changes in income, gross regional product, employment), effects on land value (e.g., changes in property values and housing costs), and societal benefits (safety, reduction in personal travel delay, and emissions benefits).

Secondary goals included:

- Improving decision-making data for policymakers
- Providing an equity analysis method for future high-capacity projects
- Developing the ability to analyze alternatives and packages of projects
- Conveying the value of transportation outside traditional metrics
- Creating a regional economic development tool.

2. **Methods, Procedures and Processes**

**Issues and considerations.** Economic analysis offers a variety of possible perspectives, metrics, and applications. The goals of the VIA Toolkit were to address the perspectives, metrics, and applications determined to be most important to the partners and to be feasible within the NEP scope and timeframe. To address the Sun Corridor Partners’ needs, the VIA Toolkit considered two sets of perspective issues and two sets of technical considerations. The perspective issues were Geographic Scales and Distributional Details, while the technical considerations involved the Economic Evaluation Elements, and the Characteristics of a VIA Toolkit.

**Scenario analysis.** The VIA Toolkit utilizes scenario analyses to expand the user’s economic analysis capabilities by assessing additional regional performance measures beyond the county-scale regional impacts that have typically been available. The toolkit can show economic impacts and land value impacts, as well as equity reports and tracing reports, in relation to the scenario chosen. The economic impact analysis of a project scenario generates a map and a table that shows the impact on four economic measures: business output, value added, jobs, and labor income.

For land value impacts, the VIA Toolkit shows land value impacts as both maps and tables for years with available data. Measures include the change in prices for five types of real estate and single-family home payment-to-income ratios. The VIA equity report displays analysis results for each subcounty district, including changes in the number of jobs, changes in access to jobs, and changes in the quality of jobs.

The VIA tracing reports show the results of the overall tracing analysis for each subcounty district. This includes maps that detail changes in access to jobs between scenarios, as well as a map displaying the distribution of Communities of Concern in the region.
3. Research Findings, Outcomes and Products

**VIA Toolkit**

The main product that came from this project is the VIA toolkit, which can be used to assess the impacts of future major transportation investments in relation to economic development, land value, and equity. It will allow for easy communication on how transportation funds will be successfully leveraged for economic benefit and considers equity.

The VIA Toolkit is built on a TREDIS foundation but can run on an open-source platform. Unlike other tools or analysis methods, the toolkit provides both high-level project or program results as well as detailed economic outputs by temporal, geographic, industry, and occupational dimensions. Additionally, the VIA Module shows the spatial allocation of project improvements, how they impact the megaregional economy, and how the changes are distributed throughout the subcounty areas. Toolkit outputs include graphics of the major impacts as well as detailed tables broken down by geography, year, industry, occupation, cost types, and others. Many of these results build on one another, providing traceability of results and different ways to examine impacts. See Figure 3.

![Figure 1. Value Impact Analysis Framework](source: Sun Corridor Value Impact Analysis Presentation)

**Capacity building activities and replication**

The project also resulted in capacity building activities that support national replication and use of the tool in other megaregions. This replicability is possible due to the VIA toolkit being reproducible in other platforms or with full custom models.

4. Challenges

**Subcounty geographies.** The primary challenge was the size (largeness) of the counties in the region. Maricopa County alone is around 10,000 square miles. This created challenges in determining subcounty...
geographies and striking a balance in the datasets. The project team had to “down allocate” (suballocate) the county-level data and “up allocate” (aggregate up) the other datasets.

**Boundary alignment.** Synching the boundaries of MPOs, census tracts, and traffic analysis zones to form a harmonious network was a critical task. Completing this took multiple meetings and working with a regional analytics team. The key to solving these challenges was collaboration with partner MPOs and including agency experts.

**Creating consistent outputs.** This closely followed the first two challenges, especially for the two travel demand models that were used. Modelers from both travel demand modeling groups worked diligently to automate and refine the necessary consistent outputs for use in the VIA project.

5. **Immediate and Long-term Anticipated Benefits**

Multiple immediate and long-term benefits are anticipated from the work the Sun Corridor Partners team completed in this project

**Immediate**

Immediate benefits include:

- **Strengthening connections.** The toolkit strengthened connections in the Sun Corridor region by highlighting the positive impacts that cross MPO boundaries. The tool is already being used to help illustrate some of the impacts of large-scale infrastructure projects. The Sun Corridor team also had discussions with representatives of Native nations and health foundations that were well documented and could help carve a path for others to follow.

- **New equity lens.** The equity analysis has provided a new lens through which to view the impacts of these transportation projects.

- **MPO partnerships.** This was an unanticipated immediate benefit. The pilot project provided an opportunity to further fortify relationships with the MPOs in the megaregion, which is a benefit to each MPO and to the megaregion as a whole.

**Long-term**

**More support for the megaregion’s future transportation investments.** Anticipated benefits include a better understanding of how transportation connects to the Sun Corridor’s economy and more support for future transportation investments through clear communication of the value of these investments.

6. **Ease of Replicability**

The VIA is replicable with minimal difficulty and can be adapted by other megaregions to assess the benefits of transportation investments. The Sun Corridor pilot project used nationally available economic models. The value impact analysis model only requires agency data and publicly available data.
sources for analysis. Although some customized processes were used for the Sun Corridor megaregion’s specific geographies, the toolkit can be reproduced in other platforms or with full custom models.

7. **Lessons Learned**

To make such an effort successful, the Sun Corridor Partners recommend the following:

- **Build contingency time into the project schedule.** You never know when something unexpected will happen. The issues around subcounty geographies are a case in point.

- **Spend extra time up front with your consultant.** Having a knowledgeable expert can make the process go smoother. Spending extra time up front to do some due diligence will be rewarded. The Sun Corridor Partners’ selected expert was knowledgeable and experienced and really helped grease the track on this entire process re: framing, conceptualizing, developing, and beta-testing the toolkit.

- **Include stakeholders in the design.** They bring unique perspectives and knowledge. The stakeholders included in the Sun Corridor project were particularly important to the project’s success. Stakeholders brought unique perspectives and a lot of knowledge on what was already being done in this area. This helped tailor the project to be complementary to stakeholder efforts.

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*Our stakeholders played a major part in our success. It’s easy to get a little myopic in our transportation comfort zones, and bringing in some diverse voices to remind you that the world doesn’t always revolve around planning time index was very, very helpful.*

—Ted Brown, Maricopa Association of Governments