

Mosaic: Value and Cost Informed Planning

Frequently Asked Questions

What is Mosaic?

Mosaic is an analysis tool and recommended process for using it within the overall transportation planning process. The purpose of Mosaic is to enable comparison of different kinds of information that can be developed during a major planning process. Mosaic uses indicators to represent possible impacts of transportation investment decisions. The indicators are grouped in nine categories that are closely related to Oregon Transportation Plan goals and policies. The indicators were chosen to be useful, outcome oriented, implementable today or in the near future, and to avoid double-counting of impacts.

You can browse our websites for more information about Mosaic. The current Mosaic user guide, analysis tool, and more are available here: <https://www.oregon.gov/ODOT/Planning/Pages/Mosaic.aspx>, while the project history and information used to develop Mosaic is available here: <https://www.oregon.gov/ODOT/Planning/Pages/Mosaic-Background.aspx>

What happened to “least cost planning”?

Mosaic is Oregon’s version of least cost planning. In its direction to ODOT, the Oregon Legislature defined least cost planning as: *“a process of comparing direct and indirect costs of demand and supply options to meet transportation goals, policies or both, where the intent of the process is to identify the most cost-effective mix of options.”*

Mosaic has been developed in an effort to meet that definition. At this time Mosaic is focused at the planning level: sets or bundles of possible transportation actions or investments, and is not intended to analyze individual projects. The project stakeholder committee made this decision because a planning-level analysis allows for the inclusion of many different types of solutions including Transportation Demand Management, alternate modes, and others. In the future, Mosaic may be adapted for use at the project level.

The name was changed from “least cost planning” to “Mosaic” in response to feedback from many stakeholders that the least cost planning name was confusing. As shown in the definition above, this process is intended to find the most cost-effective mix of many options. Most cost-effective does not necessarily mean the least up-front cost. Mosaic is a name that implies a whole made up of many individual parts, and so it better expresses the project and its products.

In what situations might it be appropriate to use Mosaic?

Mosaic is currently intended to be applied at a broad planning level such as a major corridor, a metropolitan region, or a larger city transportation system plan (TSP). It is intended to help compare the possible impacts of sets or “bundles” of possible transportation investments against a variety of basic transportation goals such as mobility, accessibility, environmental stewardship, equity, etc. This comparison can assist decision-making, but is not a substitute for your planning and decision processes.

Mosaic is to be used within a transportation planning process. The planning process will develop a vision and identify some possible sets of investments needed to help achieve that vision. Evaluating those alternative sets of investments is where Mosaic can help. Mosaic can be used to evaluate possible impacts of very different means to achieve the vision, thereby helping to identify methods your community can support. Mosaic can also be used to help evaluate possible impacts of different groups of likely transportation investments.

Mosaic is scalable. The Mosaic analysis tool has two major components: a benefit-cost comparison for impacts that can be measured in dollars; and a component called MODA (for Multi-Objective Decision Analysis) for impacts that can be measured quantitatively or described qualitatively. Using the Mosaic tool to its full capacity, with as much measured in dollars as possible, requires a lot of data to be developed. This is most likely to occur during a major metropolitan planning process with many tools in use, such as travel models, emissions estimating tools, and more.

Mosaic can also be used in a MODA-focused or MODA-only manner that would require fewer formal analysis tools and more quantitative or qualitative estimates of impacts. If a jurisdiction with few tools and resources available wanted to use Mosaic in its transportation planning process, using Mosaic in this manner would be recommended.

What are the advantages of using Mosaic?

Mosaic allows users to gather a variety of data about possible impacts of transportation investments, and to weigh and compare them on both a benefit-cost scale and a values-based scale that is weighted with stakeholder input. This enables a thorough evaluation of possible investment impacts on multiple indicators that reflect basic transportation goals and OTP goals and policy. All indicators used in the MODA component of Mosaic should be weighted with stakeholders so that the final score is a combination of the scaled original measures and the weights decided by members of the community or decision making body. This allows Mosaic to reflect the values of a community.

Mosaic also is a means to document the information used to make a decision. The analysis tool is an Excel 2010 workbook. Assumptions and parameters used and data entered are all contained in the Mosaic workbook and are designed to be presented along with outputs of the analysis. This way, Mosaic provides a much more complete record of the information considered in a decision than is often available for a planning process.

For what types of planning processes is Mosaic most appropriate?

Mosaic is not intended to be used at the project level at this time. The indicators and methods used in Mosaic are designed to be used at a broad scale with multiple significant investments to compare. If used for analysis at a project-level scale, Mosaic would be not very helpful at best or misleading at worst. This means that Mosaic is not appropriate for analyzing alternatives for a project or refining the design or details of a project. Mosaic is intended for broader, planning-level analysis of transportation alternatives.

Mosaic has been developed specifically for the transportation field. While the Mosaic indicators assess impacts in many other fields (such as health and environment), these are designed to analyze transportation alternatives. The ideas behind Mosaic and its general structure could be used to inform the development of analysis tools for other fields, but Mosaic itself is not appropriate for a non-transportation use.

A Mosaic analysis should not be considered precise. Mosaic uses “indicators” that are intended to gauge the direction and degree of impact for different investment bundles relative to one another. The goal is to help your community compare them and make informed decisions, not to provide specific direction on selecting alternatives. Mosaic uses a lot of data that are estimates from a variety of tools or quantitative or qualitative comparisons. Mosaic even includes some estimating tools within it to help gauge impacts of certain kinds of investments that do not yet have well established tools for measurement. Mosaic gathers estimating data about possible impacts from many sources to enable a general comparison of impacts all together in a consistent and helpful manner.

What does Mosaic *not* do?

Mosaic does not provide answers; it provides information – a great deal of information about likely impacts of different possible decisions. It is your decision-making body’s role to consider the different impacts and costs and benefits and make a decision.

Mosaic takes time and data; it is not for quick answers or quick evaluation. Any decision to use Mosaic should be made early in the transportation planning process so that needed data can be developed throughout the process.

Mosaic will not identify possible projects or least expensive projects. Mosaic does not substitute for transportation planning or travel modeling. Transportation planning is the process by which alternatives for analysis are developed, appropriate to help achieve the identified vision. Mosaic is also not a travel model; it will not identify or predict travel demand.

How is Mosaic similar to or different from other comparative analysis tools and processes being developed by others?

Due to the recognized need for efficient transportation investments and the many kinds of impacts to consider, various tools are being developed and used simultaneously by different jurisdictions,

companies, and interest groups. Each of these tools has a different focus or purpose. Many of them are designed to focus analysis on a few key issue areas, such as greenhouse gas reduction or the “triple bottom line.” The new tools also differ in what they consider and when they are intended to be used. For example, some are focused on rating projects, others are more focused on certain types of impacts, and some are designed for general policy comparison.

Mosaic is one of the broadest and most flexible of these new evaluation tools, though it is designed for use after details about possible investment bundles are developed in a transportation planning process. For example, Mosaic has nine different categories of transportation investment impacts that are evaluated. None of these are inherently more important than any other within the tool. However, users can choose to weight some categories or indicators more heavily than others to emphasize those types of impacts in the evaluation and tailor the analysis to their community’s goals.

Another tool that ODOT has developed recently is the [Regional Strategic Planning Model](#) (formerly GreenSTEP) for greenhouse gas reduction policy analysis and scenario planning. RSPM can help evaluate very broad policy “levers” that may be used and their impacts on a similar range of issues to Mosaic analysis. RSPM applies before any particular investments are identified, to help communities find the kinds of policies that they can adopt to work on greenhouse gas reduction with acceptable impacts in other areas.

Mosaic evaluates specific bundles of well-defined investments that implement policies or the vision described in a plan. For example, if a community wished to, they could use RSPM to find the general policy direction desirable to the community. Then, after specific sets of possible investments are identified, Mosaic could be used to help evaluate the alternative bundles of investments against all of Mosaic’s indicators.

Mosaic is generally compatible with the other evaluation and analysis tools being developed for alternatives comparison. However, each is designed to be used for different purposes, or at different scales or points in the planning or project delivery process. Your community should carefully consider which might meet your analysis needs and select the right tool or tools for your purposes.

What resources do I need to have available to use Mosaic?

Mosaic is detailed and complex and that it will take time and effort to develop the data needed to employ Mosaic. Mosaic is designed to be used during a major transportation planning process such as a complex corridor plan or a larger city or region’s system plan. During such a process, a good deal of the data needed by Mosaic is likely to be developed anyway. Using Mosaic would then require some extra time and effort, but not to an extreme degree.

Full use of Mosaic’s capabilities requires a travel demand model and other tools, such as a geographic information system and emissions estimator such as MOVES. In this case, as many indicators as possible are included in the benefit-cost component of Mosaic.

To use the benefit-cost component for some indicators and MODA for most of them, at least a travel demand model will be needed.

For a MODA-only Mosaic evaluation, staff and stakeholder effort will be needed to develop quantitative and qualitative estimates of impacts for each indicator in the bundles to be evaluated and to weight the categories and/or indicators. The Mosaic workbook will then help translate these into scores on a shared scale to develop overall MODA scores for each bundle of investments.

If I think I want to use Mosaic, what should I do?

Mosaic's websites can be reviewed and the tool can be downloaded and explored now. In December 2014, updated information and an updated version of the tool will be available on the Mosaic website (<https://www.oregon.gov/ODOT/Planning/Pages/Mosaic.aspx>). The updated information will help you determine if Mosaic is the right tool for your needs. Information will include lessons learned from the recent Mosaic tests, including how and when it works best and the resources needed to use it effectively in a transportation planning process.