

Chapter 5

Development and Evaluation of TSP Alternatives

Overview

Based on the Transportation System Planning Guidelines developed by ODOT, several alternatives for improving the multimodal transportation system in rural Josephine County were developed and evaluated. The purpose of these alternatives was to provide the basis for identifying project priorities and determining the preferred policy direction and project improvement recommendations for the TSP, consistent with community values and local land use patterns.

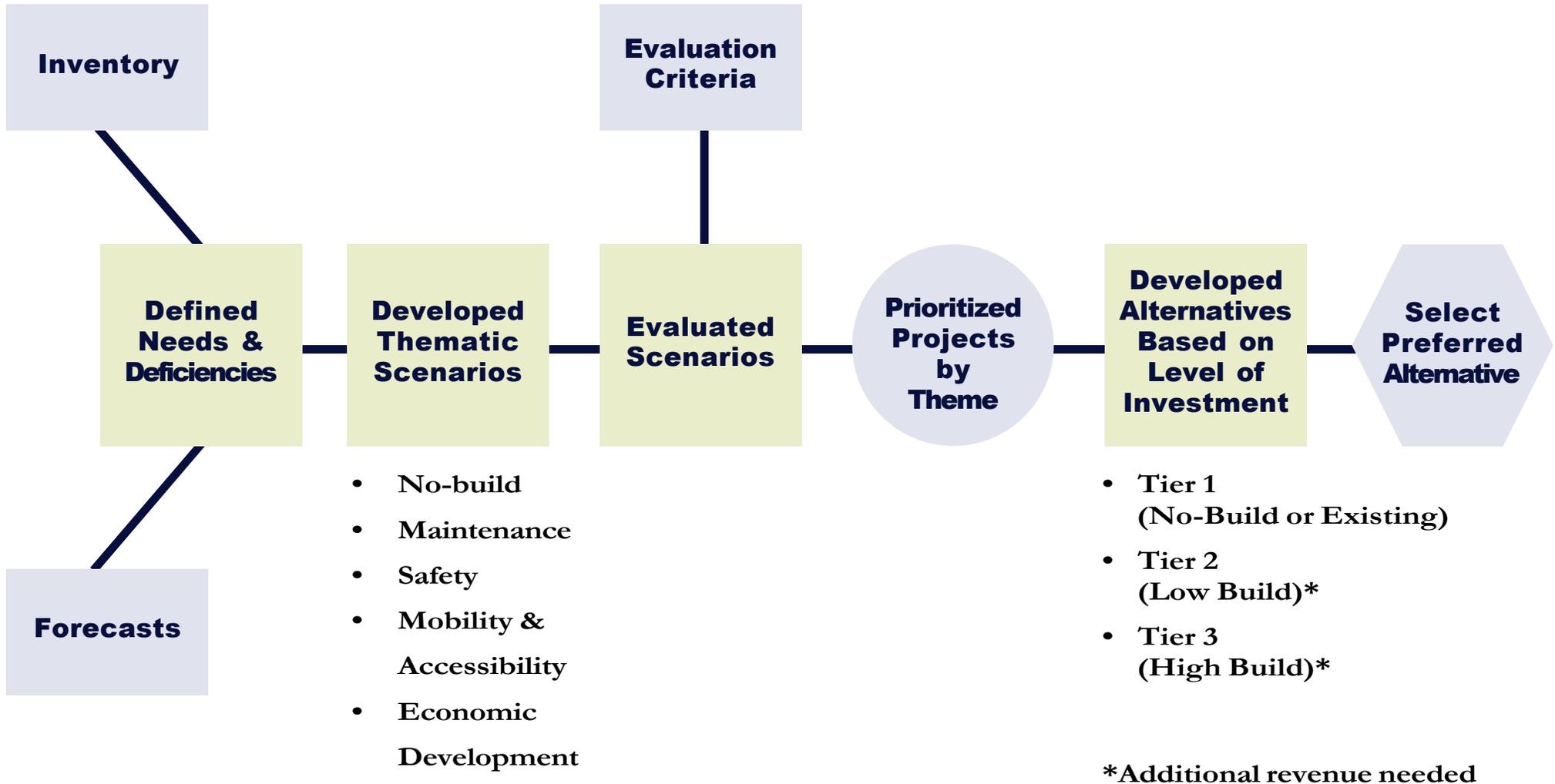
The process leading to development and evaluation of transportation improvement scenarios and tiered TSP alternatives is described in this chapter. A more detailed discussion of the specific projects included in each scenario and alternative is presented in the chapters devoted to each major travel mode including: the street and roadway system plan (Chapter 6), the public transit plan (Chapter 8), and the non-motorized transportation plan (Chapter 11).

TSP Alternative Development Process

TSP alternatives were developed and evaluated in a multi-step process as described below and illustrated in Figure 5-1:

1. Existing and future (2025) transportation system needs and deficiencies were identified for each travel mode. Needs and deficiencies were identified in the following categories:
 - On-going and routine maintenance needs
 - Intersection and roadway congestion problems
 - Safety
 - Structurally-deficient bridges
 - Public transit
 - Pedestrian and bicycle circulation
2. Options to address these deficiencies were developed. These options were grouped by improvement type into “thematic” scenarios as described below. The term “thematic scenarios” refers to the overall *objective* of the specific grouping of projects, typically to address a specific *type* of problem, deficiency, or other community goal. The thematic scenarios developed for the Rural Josephine County TSP were based on the following objectives that stakeholders identified as important for the rural Josephine County TSP:
 - Continuation of existing patterns of investment and improvement (No Build Scenario).
 - Increased level of funding for maintenance to ensure that the roadway system can be preserved in a condition similar or better than today (Maintenance Scenario).
 - Emphasize safety-related improvements as the priority use of local transportation revenues (Safety Scenario).
 - Emphasize improvements that enhance existing and future roadway system capacity, accessibility to all developed portions of the county, and to ensure access to transit service (Mobility and Accessibility Scenario).

Figure 5-1 Plan Development Process



- Emphasize improvements that complement local economic development efforts including access to job-creating industrial or commercial property and/or tourism enhancement (Economic Development Scenario).
3. Projects within each scenario were evaluated using the criteria developed to support the draft goals and objectives of the TSP. These criteria were endorsed by the TSP stakeholder committees. This evaluation was “unweighted” meaning that, when the evaluation criteria were applied, no priority was given to any one specific criterion or groups of criteria. As the evaluation process continued into the development of a preferred transportation system alternative, some weighting of criteria was considered. For example, *maintaining a minimum level of roadway maintenance* was considered to be among the most important uses of available transportation revenue (for without maintenance the system will not continue to be usable over the long-term). Accordingly, expanded routine maintenance projects rose to the top of the prioritized list of projects for implementation.
 4. After the evaluation process was completed, projects within each scenario were grouped into three *transportation system alternatives* consistent with a three-tiered approach to transportation funding. For example:
 - The Tier 1 (or No Build) Alternative would include all projects that could be built using only revenues from existing available funding sources (primarily the continuation of the existing program of maintenance with a declining level of investment consistent with declining revenues).
 - The Tier 2 (or Low Build) Alternative would include the most highly ranked projects coming out of the evaluation of the thematic scenarios. Tier 2 projects do not currently have an identified funding source, so some level of **additional revenue would be necessary** to implement this alternative.
 - The Tier 3 (or High Build) Alternative would include all of the projects that meet the transportation system needs identified in the TSP. While this alternative would likely be very expensive and probably not attainable, creating a Tier 3 project list has value. *If additional funding should become available over the lifetime of the TSP, a project that currently doesn't have funding must still be identified on either the Tier 2 or Tier 3 list in order to be eligible for this funding.*

As noted above the projects included in the tiered improvement alternatives are presented in the specific modal chapters. The sections below describe in greater detail the process of identifying thematic scenarios, prioritizing projects, and developing tiered alternatives.

Introduction to Transportation Scenarios

The development of improvement scenarios provided the initial step in developing alternatives for the TSP. For each scenario, individual improvements were identified, analyzed and ranked according to a set of qualitative and quantitative criteria developed by TSP stakeholders. The ranking provided a foundation for discussing which potential improvements should be included in each tiered alternative.

Each of the transportation scenarios has a different emphasis to reflect the policy and financial choices available to the County. For example, one scenario reflects an emphasis on improved maintenance of the basic roadway system including repair of deficient bridges. Another emphasizes safety, while another focuses on resolution of the identified intersection and roadway congestion problems. Maps of all but the No Build scenario are included in Chapter 6. The five TSP scenarios include the following elements:

- No Build Scenario – this scenario assumes that no improvements will be made to the existing transportation system over the 20-year planning period except those identified in the State’s Adopted 2002-2005 and Draft 2004-2007 STIP combined with routine County and State roadway maintenance. It should be noted that due to declining transportation revenues coupled with inflation, the level of routine maintenance included in this alternative would be less than the level currently provided to County residents, leading to increasing deterioration of the existing roadway system. Improvements listed in the No Build Scenario have not been evaluated, as they are committed improvements and are assumed in all scenarios.
- Maintenance Scenario – this scenario includes no new capacity enhancement projects, but focusing on improved maintenance of the collector roadway system and repair/replacement of structurally deficient bridges. Under this scenario, the level of funding for routine maintenance would be increased to a level sufficient to maintain the County’s roadways at their current levels and to curtail the existing trend toward increased system deterioration. Several significant roadway maintenance projects are included in this scenario.
- Safety Scenario – this scenario focuses on projects addressing vehicle safety, and safety enhancements for non-motorized travel mainly within one mile of rural activity centers (such as schools or neighborhood commercial centers).
- Mobility/Accessibility Scenario – this scenario includes potential solutions for projected future mobility needs, including congested roadways and intersections; and improvements aimed at improving multi-modal accessibility such as enhanced transit service.
- Economic Development Scenario – this scenario includes improvements that would enhance freight mobility and support job creation at employment centers and in recreational/tourism related locations. Included are projects that improve access to industrial and commercial land, bicycle/pedestrian improvements along several major travel corridors in scenic or recreational locations, potential rail improvements within or otherwise benefiting the County, and improvements that would promote freight mobility in the Merlin area and through the Illinois Valley.

The five scenarios and their specific improvements and recommendations are discussed in Chapters 6 (for street improvements), 8 (public transit improvements), and 11 (bicycle and pedestrian improvements).

By grouping projects in this manner, the project evaluation process could focus on comparing similar types of projects to determine which ones would be the most effective in meeting identified needs. In other words, safety projects would be evaluated in comparison with other safety projects, and not compared with mobility projects that address congestion concerns.

Evaluation Process

Stakeholders and Josephine County staff worked together with the consultant to develop a wide-ranging set of criteria with which to evaluate potential improvements in each of the scenarios. Stakeholders adopted eleven primary measures for evaluation. Detailed elements within various criteria were adopted to allow more focused assessment. For example, to evaluate whether a potential improvement would improve efficiency and circulation, three specific issues were evaluated:

- Would the improvement enhance street connectivity?
- Would the improvement facilitate connections to other transportation modes?

- Would the improvement make good use of existing facilities?

Other criteria analyzed address the degree to which an improvement would:

- Affect transportation safety;
- Meet County and ODOT traffic operational performance standards;
- Affect users of alternative transportation modes such as pedestrians and bicyclists;
- Promote economic development including freight mobility and business accessibility;
- Promote fiscal responsibility;
- Provide sufficient capacity to meet future demand;
- Minimize environmental impacts;
- Avoid impacts on existing property owners;
- Serve low-income and/or transportation-disadvantaged groups; and
- Meet multiple objectives.

A total of 26 factors were used to rate individual improvements. Three modifications were made to the original evaluation factors developed by project stakeholders, including combining State and County v/c and LOS traffic operational performance standards, adding a three-level order of magnitude cost, and adding an evaluation of the ability of specific improvements to meet the needs of groups underserved by the existing system. To quantify the evaluation, a matrix was developed for each scenario listing proposed improvements and strategies along one axis and the evaluation factors on the other. A matrix score sheet for each of the improvement scenarios is attached, detailing the scores assigned to every improvement.

Rating individual improvements is largely a qualitative exercise based on technical evaluation and professional judgment. For this reason, no weight was assigned to any of the criteria. Ratings of -1, 0 and +1 correspond to moderately ineffective, neutral, and moderately effective, respectively. Detailed spreadsheets summarizing the ratings are included in Appendix D.

The evaluation criteria include only a generalized assessment of fiscal impact. A 3-stage cost range was assigned, corresponding to inexpensive (e.g., warning sign installation), moderately expensive (e.g., signalization or intersection modifications) and highly expensive (e.g., replacement bridges or highway passing lanes). County staff and the consultant identified projects to include in each alternative based on the evaluation criteria. Besides fiscal impacts, other evaluation criteria that were used fall into the categories of safety, applicable State and County performance standards, non-motorized travel benefits, economic benefit, sufficient capacity, system efficiency and circulation, potential environmental impacts, potential impacts to property owners, benefit for groups that are transportation-disadvantaged, and ability to meet multiple objectives.

Identification of Improvement Strategies and Tiered Alternatives

After the evaluation process was completed, projects within each scenario were grouped into three *transportation system alternatives* consistent with a three-tier approach to transportation funding.

- The Tier 1 (No Build) Alternative includes all projects that could be built using only revenues from existing available funding sources (primarily the continuation of the existing program of maintenance).
- The Tier 2 (Low Build) Alternative includes the most highly ranked projects coming out of the evaluation of the thematic scenarios. Tier 2 projects do not currently have an identified funding source, so some level of **additional revenue would be necessary** to implement this alternative. This alternative was identified as the Preferred course of action for the TSP.
- The Tier 3 (High Build) Alternative includes all of the remaining projects that meet the transportation system needs identified in the TSP. While this alternative would likely be very expensive and probably not attainable, creating a Tier 3 project list has value. *If additional funding should become available over the lifetime of the TSP, a project that currently doesn't have funding must still be identified on either the Tier 2 or Tier 3 list in order to be eligible for this funding.*

The three alternatives and the evaluation criteria results were then reviewed with project stakeholders, who shifted a few improvements from Tier 3 to Tier 2. These changes were made to reflect the relative importance of the projects that were shifted, as well as the potential for state funding of two additional projects located on State facilities. While ODOT currently has made no financial commitment to participate in any of the improvements identified in the TSP beyond those listed in the approved STIP, it may be possible for ODOT to finance a portion of the costs of these projects over the 20-year timeframe addressed in the TSP.

After an opportunity for review and comment, the improvements, programs and strategies included in these alternatives proceeded through a financial screening to identify a fiscally constrained alternative. Additional stakeholder input was used to mold the fiscally constrained alternative into the “preferred” or recommended system alternative for the Draft TSP.

It should be noted that the Preferred Alternative (Tier 2) includes more projects than could be funded by projected revenues from existing funding sources. By including these projects in the TSP they become eligible for a variety of potential local and external funding sources. Chapter 13, the financial element of the TSP, outlines a range of possibilities to fill the funding gap, such as System Development Charges (SDCs), local gas taxes, transportation utility taxes, extraction taxes, special assessment fees, local vehicle fees, revenue bonds, and general obligation bonds.