ActiveTrans Priority Tool Overview

This guidebook presents the ActiveTrans Priority Tool (APT), a step-by-step methodology for prioritizing pedestrian and bicycle improvements along existing roads. The APT is intended to be used by planners and other agency staff charged with managing a pedestrian or bicycle prioritization effort. It is designed to encourage practitioners to prioritize pedestrian and bicycle improvement locations by establishing a clear prioritization process that is:

- **Responsive to agency/community values:** Transportation agencies often make decisions based on a defined set of goals or values of the communities they serve.
- **Flexible:** Rather than being a rigid, "one-size-fits-all" tool, the APT is flexible and allows practitioners to choose the most appropriate approach that reflects agency/community values and resource availability.
- **Transparent:** The APT is designed to facilitate transparency by breaking the prioritization process down into a series of discrete steps, each of which can be easily documented and explained to the public.
- **Responsive to** the unique needs of pedestrians and bicyclists.

How the ActiveTrans Priority Tool May Be Used

The APT can be used to rank pedestrian or bicycle facility improvement locations along existing roads. Since the needs of pedestrians and bicyclists are different, the APT is designed to address each mode separately; however, the APT can also be used as part of a complete streets prioritization process that considers pedestrian and bicycle improvements together.

The APT can assist an agency in identifying areas or locations for improvements, but does not provide guidance for determining pedestrian or bicycle facility design solutions. For such guidance, agencies are encouraged to use other resources that address pedestrian and bicycle facility design, such as the various guides produced by the American Association of State Highway Transportation Officials (AASHTO) and National Association of City Transportation Official (NACTO), the *Manual for Uniform Traffic Control Devices* (MUTCD), and the Public Right-of-Way Accessibility Guidelines (PROWAG), among others.

Different types of agencies may use the APT in different ways. State or regional agencies responsible for distributing funding to local agencies may use the APT to evaluate proposed improvements based on policy objectives. Local agencies with an identified list of bicycle or pedestrian improvements may use the APT to establish which improvements are implemented in the near, medium, and long term.

Finally, agencies may apply the APT only once or iteratively. An example iterative process might include applying the APT three times: first to identify and rank corridors (iteration 1),

then to identify intersections within high-ranking corridors for field assessment (iteration 2), and finally to rank and prioritize specific improvements identified through the field assessment (iteration 3).

Key Terms

Below is a list of key terms used in the APT. It is important for readers to be familiar with these terms.

Improvement Locations: Improvement locations are the specific intersections, roadway segments, or areas that are considered during the prioritization process. For example, a prioritization process may seek to identify the top 10 intersections for pedestrian crossing improvements in a neighborhood with 100 intersections. This prioritization process would have 100 improvement locations.

Factors: Factors are categories used in the prioritization process to express community/agency values and group variables with similar characteristics. For example, the Demand factor includes variables such as population density, employment density, proximity to schools, proximity to shopping, and other characteristics related to the potential to generate pedestrian and bicycle activity. Including certain factors and weighting those factors differently allows an agency to express what its constituents value or care most about.

Weights (Weighting): Weights are numbers used to indicate the relative importance of different factors based on community or agency values. For example, if a community decides that the Safety factor is more important than the Constraints factor, it would give the Safety factor a higher weighting. The unweighted factor score is multiplied by the weight number to determine the weighted factor score.

Variables: Variables are characteristics of roadways, households, neighborhood areas, and other features that can be measured. Variables are the core elements of the prioritization process. For example, "roadway traffic speed" and "neighborhood population density" are variables. Variables can be measured using quantitative or qualitative data values.

Measures: Measures are the specific metrics used to quantify variables. There is often more than one way to measure a variable. For example, "roadway traffic speed" can be represented by the measure of "85th percentile speed" (which is often gathered from a speed study) or by the measure of "posted speed limit" (which can be observed from signs in the field or from a roadway database).

Data Values: Data values are the quantitative or qualitative values used to express the measures in the prioritization process. For example, data values may be "30 miles per hour" on a roadway segment, "100 people per square mile" within a quarter-mile buffer of an intersection, or "2 crashes" reported at an intersection.

Scaling: Scaling (or normalizing) involves identifying a common numeric scale (e.g., 0 to 10) for all variables and adjusting the data value for each variable to fit this scale. The purpose of scaling is to make variables with different data value ranges comparable to one another. Otherwise, variables with high data value ranges (e.g., population) might far outweigh variables with low numerical ranges (e.g., crashes) when the prioritization score is calculated. Scaling should ideally be done based upon a mathematical formula, and agencies should not attempt to affect the influence of variables through scaling—this is done through weighting.

Prioritization Scores: Prioritization scores are the final scores for each discrete improvement location considered in the prioritization process. They are the result of multiplying the scaled
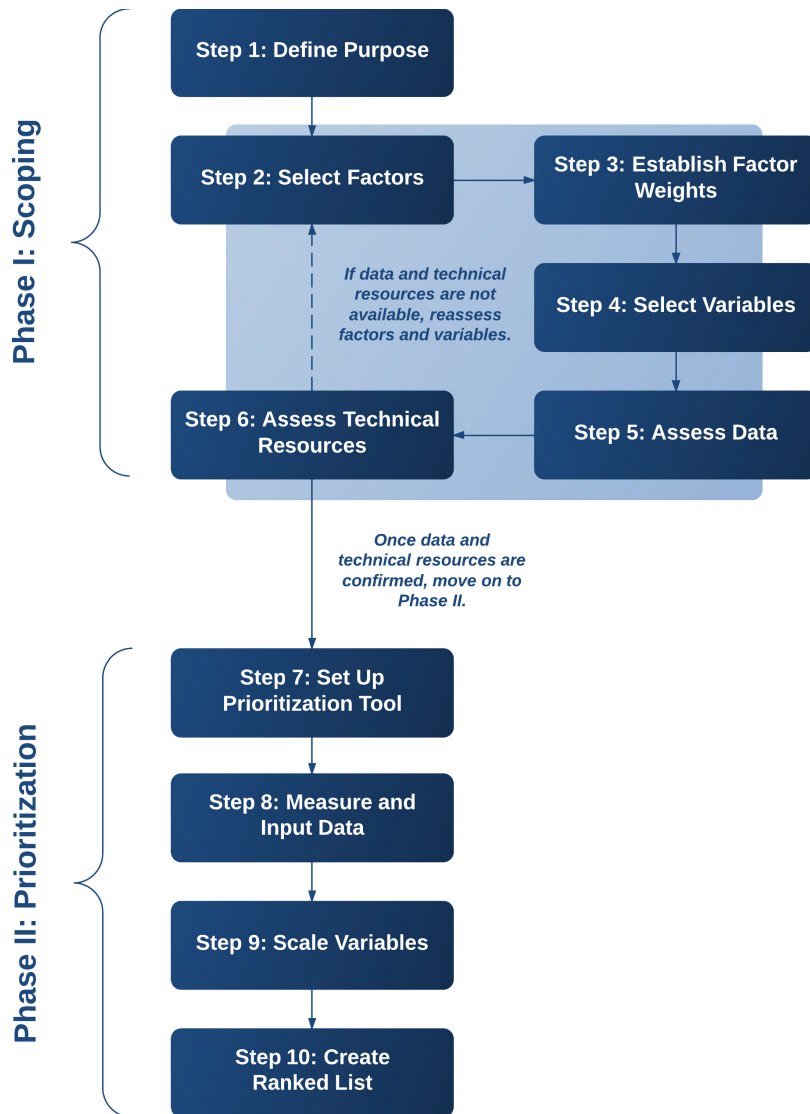
Figure 1.   ActiveTrans priority tool methodology.

data values by specific weights and summing these values across all factor categories. These prioritization scores are typically ranked from highest to lowest to create the final prioritized list. For example, each roadway segment that is being prioritized will receive a final prioritization score. The roadway segment with the highest score will be the top priority for project implementation.

The APT consists of 10 steps divided into two phases (Figure 1).

Phase I: Scoping

Phase I consists of the initial deliberation and preparation necessary for an agency to set up an effective prioritization process. Phase I starts at a high level, defining the broad purpose of the prioritization effort. This initial scoping phase becomes more focused as variables, data, and technological resources are considered. The six steps in Phase I are:

Step 1—Define Purpose.

Step 2—Select Factors.

Step 3—Establish Factor Weights.

Step 4—Select Variables.

Step 5—Assess Data.

Step 6—Assess Technical Resources.

While the steps in Phase I may proceed in a linear fashion, the process also may advance iteratively; that is, the outcome of a later step may require an agency to revisit one or more previous steps. For example, if an agency finds that it does not have the data (Step 5) or technical resources (Step 6) needed to analyze certain selected factors (Step 2) or variables (Step 4), than it might need to reassess the feasibility of including those factors or variables in the prioritization.

Phase II: Prioritization

The goal of Phase II is to calculate prioritization scores for each improvement location based on the purpose, factors, weights, variables, and technical resources identified in Phase I. Phase II is a more linear process that includes the following steps:

Step 7—Set Up Prioritization Tool.

Step 8—Measure and Input Data.

Step 9—Scale Variables.

Step 10—Create Ranked List.

A programmed spreadsheet and user guide (see Appendix A, Programmed Spreadsheet User Guide) have been developed as a part of this study to assist agencies with implementing Phase II of the APT. The programmed spreadsheet is designed to be used "off the shelf," saving agencies time that would otherwise be spent setting up a prioritization tool. The user guide includes technical details on how the programmed spreadsheet can be used to score and rank projects.