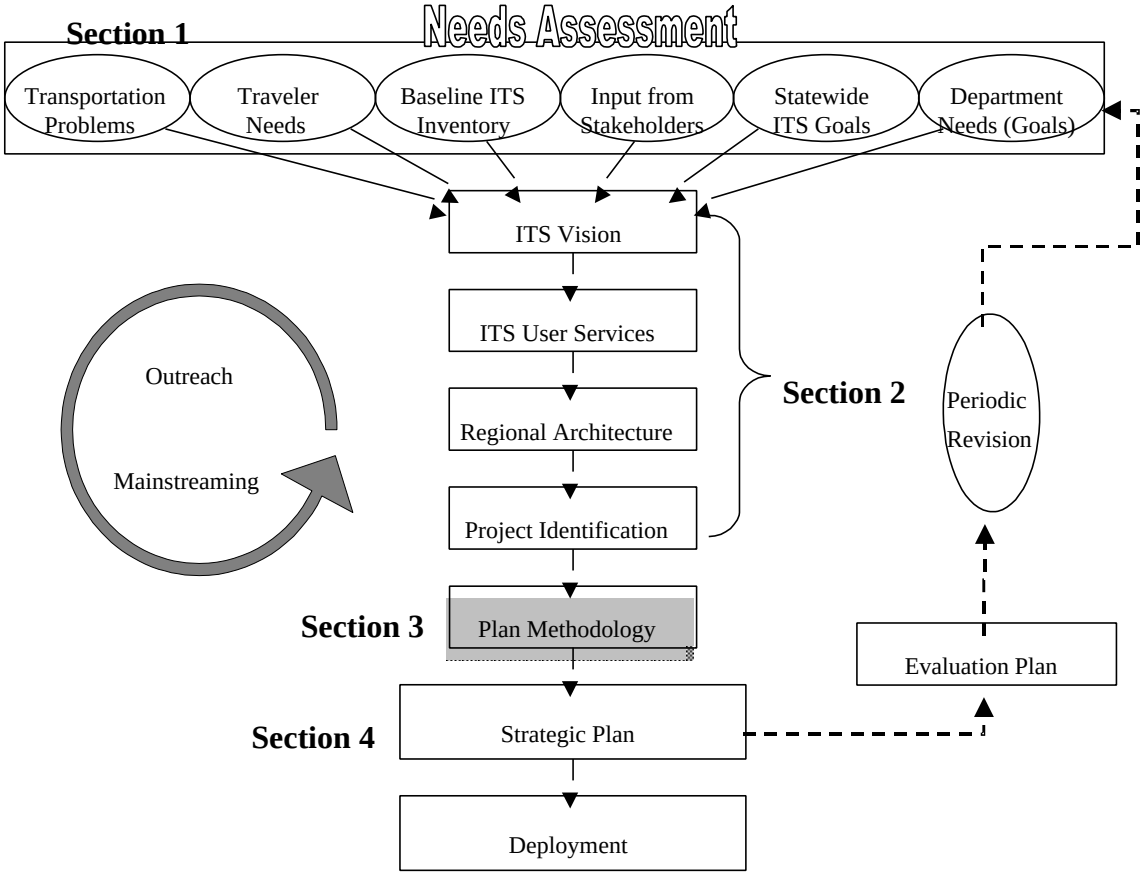
Section 3: Plan Methodology

3.0 Introduction

Objective

The objective of this section is to develop an ITS planning methodology for the KDOT ITS Unit to follow between periodic updates of the Kansas Statewide ITS Plan. The methodology outlined in this section is a continuous process that assists the KDOT ITS Unit in the identification, tracking, ranking and prioritization of ITS projects. Figure 3.1 shows a flow chart that has been used to develop the Statewide ITS Plan for Kansas. The Plan Methodology, shown shaded in figure 3.1, is followed by the Strategic Plan for deploying ITS in Kansas, which is documented in section 4. The rest of section 3 includes the process for identifying and tracking projects involving ITS, the process for ranking and prioritizing projects, and a summary of results from the second round of KDOT district visits in January 2000.

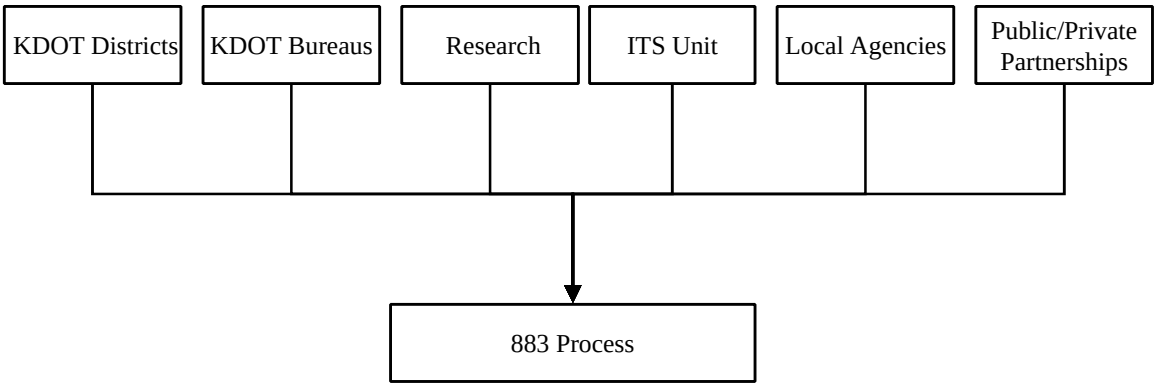
Figure 3.1: Kansas Statewide ITS Plan Flow Chart



3.1 Identifying and Tracking Projects Involving ITS

The first step in the plan methodology is determining a process for identifying and tracking the projects that involve ITS. In this process, ideas for ITS-related projects will come from a number of different sources other than the ITS Unit as shown in figure 3.2. Some of the different sources of ITS projects include the KDOT Bureau of Design, other KDOT Bureaus, KDOT Districts, research, local agencies, and public/private partnerships.

Figure 3.2: Sources of ITS Projects



KDOT follows a formal process, referred to as the 883 process, for each of its projects. This is called the 883 process since it is a requirement that an 883 form be filled out for each design project. A formal procedure for identifying appropriate ITS enhancements to typical design projects is described below. A less formal procedure for identifying ITS projects from sources other than the Bureau of Design is also described.

Process for Design Projects

A key to mainstreaming ITS into KDOT business is providing the KDOT Bureau of Design with a formal procedure to help it identify potential ITS enhancements in its typical design projects. Figure 3.3 shows how ITS can be integrated into the current KDOT Design process. The double-lined boxes in the middle of figure 3.3 represent the traditional design process for KDOT. The single-lined boxes outside of this path represent ITS-related functions being integrated into the process.

The most significant change to the traditional design process is the addition of an ITS Checklist. The ITS checklist will be introduced during the Discovery Phase of the project. This Checklist will be developed by the ITS Unit and will contain criteria that when met would indicate an opportunity for ITS to be added to the project. For example, if a project is located on a priority corridor or in a high accident location, then ITS should be considered for that project. The steps in table 3.1 explain how the ITS-related functions can be integrated into the current Design process.

Figure 3.3: Project Selection and Tracking

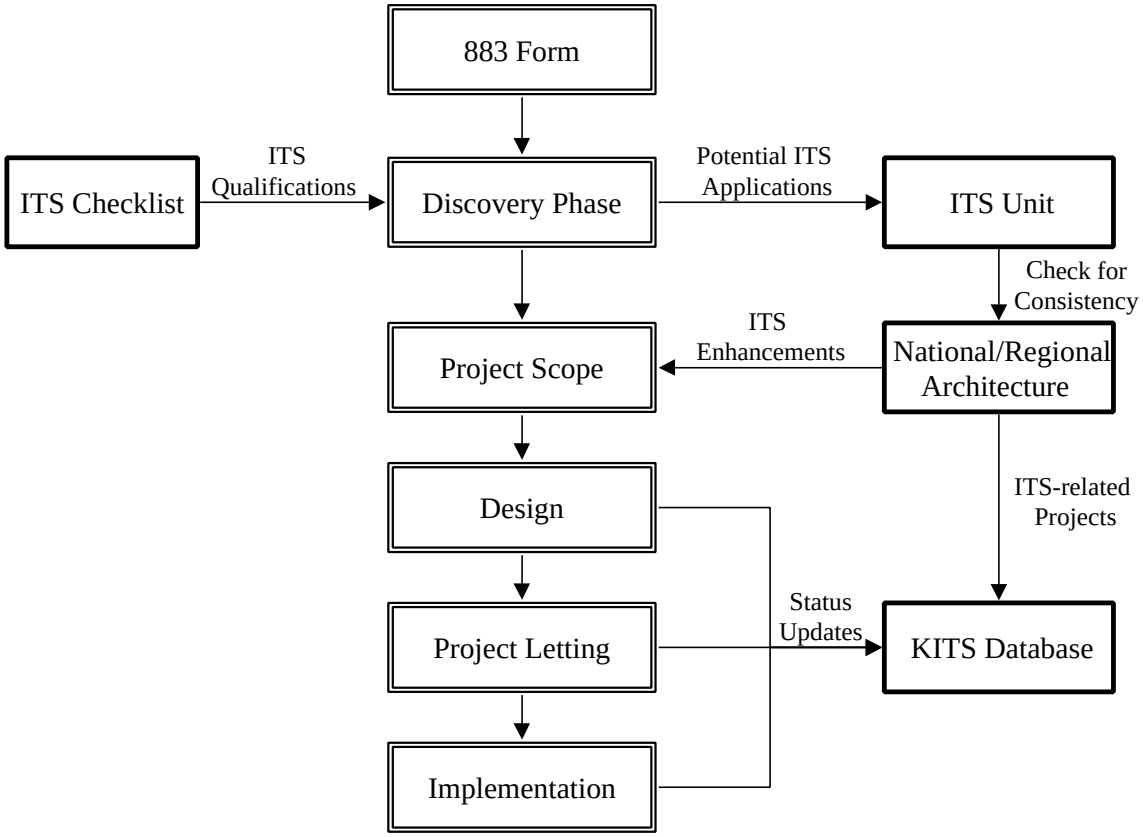


Table 3.1: Integrating ITS into the 883 Process for the Bureau of Design

Integrating ITS into the 883 Process for the Bureau of Design
1. ITS Checklist used by design squad during Discovery Phase. The Checklist contains descriptions of roadway/traffic conditions that provide opportunities for ITS deployments. If these thresholds are met, then the 883 form should be forwarded to the ITS Unit for review.
2. ITS Unit consults with Design Squad on whether project should have ITS in its scope.
3. ITS Unit checks project for consistency with the appropriate regional ITS architecture.
4. If ITS Unit determines that the project warrants ITS enhancements, then ITS is added to project scope and a KITS Project is created and added to KITS database for tracking.
5. The project status is updated in the KITS Database as its status changes from proposed to funded, from funded to ongoing, etc.

Section 3.2 will expand on the duties of the ITS Unit with an emphasis on ranking and prioritizing ITS projects and tracking projects using the Kansas ITS Database and the Kansas Statewide Architecture.

Process for Non-Design Projects

The mainstreaming process described above will work well for integrating ITS into the Design Bureau. However, there are other bureaus within KDOT that do not follow the process depicted in figure 3.3 when developing their projects. For instance, the Division of Operations funds most of its projects from their operating budget and does not go through a formal 883 process. It will be a challenge to define a formal procedure for integrating ITS into the day to day business of these bureaus. One way to do this is by educating KDOT to get them thinking about ITS and its benefits. Another strategy for integrating ITS into the non-design bureaus is to start with a few proof of concept projects to sell the benefits of particular ITS applications (e.g. AVL). Once the bureau and KDOT management see that ITS is beneficial, then they might be willing to increase deployment of the application district wide and eventually statewide.

Ideas for ITS projects may come from sources outside of KDOT as well. For instance, Universities and other research institutions are often a good source of innovative ideas for ITS projects. Likewise, local agencies and the private sector may come up with ideas for new ITS projects. It is important for the ITS Unit to be proactive in soliciting ideas for ITS projects from each of these sources. The project form described in the Analysis of ITS Elements is a good tool for soliciting ideas from these sources.

3.2 Ranking and Prioritizing Projects

Once potential ITS projects are identified, a process is recommended to evaluate, rank and prioritize the various projects. As discussed in Section 3.1, potential projects may be identified from a variety of sources both internal and external to the KDOT ITS Unit. This section provides a framework for the ITS Unit to evaluate and rank the various projects once they have been identified to the staff of the ITS Unit.

A consistent, yet flexible, ranking and prioritization process is necessary to provide a systematic manner for comparing the wide variety of potential ITS projects brought to the attention of the ITS Unit. This framework is recommended in order to:

- Provide the ITS Unit with a consistent format for evaluating projects;
- Ensure consistency with the appropriate regional ITS architectures;
- Provide the ITS Unit with comparable measures to allow comparison and ranking of diverse projects;
- Ensure the identification of critical deployment issues and potential implementation barriers;
- Determine the optimal project phasing strategies; and,
- Ensure the proper tracking and documentation of ITS projects.

The ranking and prioritization process will most likely be performed by the staff of the ITS Unit and the ITS Steering Committee with assistance and consultation with the agencies/bureaus that would be responsible for actual project implementation. Table 3.2 provides a summary of the project ranking and prioritization process that could be followed once projects have been identified. Although the specifics of this process may vary depending on the type of project and the source of project identification, the process provides general guidelines for the proper consideration of potential projects by the ITS Unit. The process described in Table 3.2 provides additional detail to the ITS Unit activities shown in the boxes down the right side of the flow chart presented in Figure 3.3.

Table 3.2: Ranking and Prioritization Process

Ranking and Prioritization Process for ITS Unit
1. Identify and inventory potential ITS project. [See Section 3.1]
2. Consult with project source/owner to discuss project details and offer implementation advice.
3. Explore funding alternatives.
4. Explore opportunities for public/private partnerships.
5. Consult with project source/owner to develop detailed project scope. If ITS project is being integrated into a design project, add ITS to the scope of design project.
6. Check for consistency with appropriate ITS Architecture. If project is not consistent with the architecture, propose either: - a) changes to the project to bring it into conformity, or, - b) variances to the architecture to allow conformity.
7. Enter project into ITS database (Assign KITS ID#)
8. Conduct project screening against project criteria. • Evaluate support for project. • Evaluate telecommunication and special design needs. • Evaluate technical and organizational feasibility. • Evaluate funding source and process to continue operations and maintenance of project. • Evaluate project-phasing issues. • Evaluate project costs and benefits.
9. Identify barriers to project deployment.
10. Compare proposed project with existing projects in the KITS database.
11. Determine appropriate project phasing and status.
12. Consult with project source/owner to obtain feedback.
13. Update KITS database with project information.
14. Conduct agency and public awareness outreach.

This process is intended to first explore various options for implementing the identified project. Then the project is evaluated against several criteria to analyze if the particular project is warranted based on its merits and project characteristics. The next major step in the process compares promising projects with the characteristics of existing projects in the ITS Plan to determine the proper phasing for deployment. The final step is to communicate the goals of the project and lessons learned through outreach activities aimed at both agency staff and the public.

This ranking and prioritization process is recommended to be used internally by the ITS Unit to continually evaluate projects as they are identified. Although much of the analysis will be conducted internally, the input and participation of the ITS project owner is critical to the success of the prioritization process. Ideally, the ITS Unit and the project owner (along with other stakeholders) will meet on a continuing basis to discuss the project during the development phase. This level of interaction may not always be possible, however, due to staff workload and other circumstances. Therefore, the ranking and prioritization process identifies several key junctures in the process where the ITS Unit staff should, at a minimum, consult with the project owners to discuss the proposed project and receive feedback on the proposed deployment.

The ranking and prioritization process is intended to produce several outputs that will be valuable to the ITS Unit staff and the owners of the ITS projects. These outputs include:

1. New project entries in the KITS database describing proposed projects [Step #8];
2. Detailed project scope for Design Squad with description of ITS elements [Step #7];
3. Consistency check with the regional architecture and proposed modifications to subsequent updates of the Kansas Statewide Architecture [Step #4];
4. Identification of significant implementation barriers to overcome [Step #10];
5. Project screening data [Step #9]; and,
6. Proposed project phasing [Step #12].

These outputs should be useful to the ITS Unit in developing and updating short-range plans and in determining the conformity to the longer-range ITS vision. Several outputs, such as number 3 above, have the added benefit of helping to identify when it may be appropriate to modify the long-term vision (as represented in the statewide architecture).

3.3 Results from Second Round of District Visits

The following section documents the Kansas ITS Awareness Seminars that took place between January 18th and January 31st of 2000 as part of the Statewide ITS Plan. This was the second round of district visits. The first round of visits took place in Spring 1999 and is documented in the Baseline Condition Report. The purpose of the first round of visits was to give a brief ITS tutorial and receive input from the districts for the Kansas Statewide ITS Plan. The purpose of the second round of visits was to report on the findings of the Plan and receive comments from the attendees.

This section presents an overview of the entire seminar process and then summarizes the verbal and written feedback from the seminars. Appendices H and I contain the attendance records and the specific comments that were provided by each district, respectively.

Overview of Kansas ITS Awareness Seminars

Six ITS seminars were conducted throughout the state of Kansas between January 18 and January 31, 1999. Seminars took place at KDOT district offices in Chanute, Hutchinson, Norton, Salina, Topeka and Garden City. In total, over 160 individuals attended the six seminars. In addition to KDOT district personnel, non-KDOT attendees included city and county public works officials, transit and paratransit providers as well as EMS, law enforcement, and business interests.

The outreach effort was very successful. Copies of the attendance lists for each seminar are included in Appendix H. Seminars began with a presentation, which included an overview of the Kansas Statewide ITS Plan, an announcement of the ITS Set-Aside Program in Kansas and showing videos demonstrating the use of new ITS technologies. After the presentation, a Draft Report Summary of the Plan was handed out and the seminar participants were invited to comment on the Plan.

Overall, the seminars were well attended, audiences expressed interest in the subject and were engaged in the discussion. Participants provided feedback that will help the project team develop an effective Statewide Plan. Informal discussions and follow-up conversations also indicate that participants left seminars with a deeper understanding of the Kansas Statewide ITS Plan and its effect on their business.

Much of the discussion during the second round of district visits centered on weather-related applications of ITS. Of particular interest to local agencies was the need for sharing RWIS data between KDOT and local agencies. This issue came up again and again at the seminars. Since the conclusion of the seminars, the KDOT Bureau of Construction and Maintenance acknowledged the importance of this issue and has begun investigating ways to share RWIS data between agencies.

Another question that was frequently asked was whether or not the KITS database would be available on the Internet. Following the seminars, it was decided to make the KITS database available first on the KDOT Intranet and then possibly on the Internet.

Many of the attendees, especially those from local agencies, had questions regarding the ITS Set-Aside program. Most of these questions were regarding the types of projects that could be funded and who would be eligible for the funding.

3.4 Conclusion

This summary highlights the key points and recommendations of the Kansas Statewide ITS Plan. The recommendations are organized according to the following areas: identifying and tracking projects, ranking and prioritizing projects and results from the second round of district visits. These recommendations build upon the recommendations introduced in Section 2: Analysis of ITS Elements.

Identifying and Tracking Projects

ITS projects originate from a number of sources including the KDOT Bureau of Design, other KDOT Bureaus, research, local agencies, and public/private partnerships. Projects that originate from the KDOT Bureau of Design must go through a formal 883 process. This plan recommends the addition of an ITS Checklist to supplement the traditional design process. This Checklist will be developed by the ITS Unit and will contain criteria that when met would indicate an opportunity for ITS to be added to the project. When an ITS project has been identified, it should be added to the KITS database. This database should be used to track the status of the project as well.

One way to integrate ITS into non-design bureaus within KDOT is education about ITS and its benefits. Another strategy for integrating ITS into the non-design bureaus is to start with a few proof of concept projects to showcase the benefits of particular ITS applications (e.g. AVL). Once the bureau sees that ITS is beneficial, then they will be willing to increase deployment of the application district-wide and eventually state-wide. Finally, it is important for the ITS Unit to be proactive in soliciting ideas for ITS projects from all available sources.

Ranking and Prioritizing Projects

The ranking and prioritization process provides a systematic manner for comparing the wide variety of ITS projects brought to the attention of the ITS Unit. The ranking and prioritization process will be performed largely by the staff of the ITS Unit with assistance and consultation with the agencies/bureaus that would be responsible for actual project implementation.

The ranking and prioritization process will be valuable to the ITS Unit staff and the owners of the ITS projects by helping them in developing and updating short-range plans and in determining the conformity to the longer-range ITS vision. Several outputs, such as consistency check with the architecture, have the added benefit of helping to identify when it may be appropriate to modify the long-term vision (as represented in the statewide architecture).

Second Round of District Visits

Six awareness seminars were conducted throughout the state. The purpose of the second round of visits was to report on the findings of the Plan and receive comments from the Districts. In total, over 160 individuals attended the six seminars. Participants provided feedback that will help the project team develop an effective Statewide Plan.