RESEARCH

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Utah Department of Transportation - Research Division
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STREAMLINED ACCESS PERMITTING PROCESS

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Utah Department of Transportation
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16. Abstract

As part of the approval process for an access to a property, developers are sometimes required to perform a Traffic Impact Study (TIS), which takes time and money. This process also demands a significant amount time and resources from UDOT's Permits Department. There is a need to increase the efficiency of the permitting process, increase the number of access permits allowing a TIS to be waived, and free up valuable time for UDOT's Permits Department. The purpose of this research was to create a semi-automated tool for UDOT to reduce the number of access permits requiring a TIS. This tool, called the Access Permit TIS Form, will also help reduce the time needed for each permit while protecting UDOT's interest in maintaining safety and traffic flow on state roadways. Several different methods of research were conducted to define useful information on whether a TIS may be waived. This includes UDOT region interviews; focused best practice research on 19 agencies across the United States; a survey with questions relating to access permit applications and TIS requirements; and an analysis of UDOT's access permit database from January 2014 through March 2017. With information gathered from these research outlets, the Access Permit TIS Form was created. It is planned to be implemented immediately at the end of the research process and will provide UDOT with a tool to maintain consistency throughout the state and aid in the process to determine if a TIS can be waived.

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LIST OF ACRONYMS

AADT	Annual Average Daily Traffic
AC	Access Category
ADT	Average Daily Traffic
BYU	Brigham Young University
DOT	Department of Transportation
FHWA	Federal Highway Administration
GUI	Graphical User Interface
ITE	Institute of Transportation Engineers
LOS	Level of Service
PHT	Peak Hour Trips
TAC	Technical Advisory Committee
TIS	Traffic Impact Study
UDOT	Utah Department of Transportation
VBA	Visual Basic Applications

EXECUTIVE SUMMARY

Developers are required to obtain approval from Utah Department of Transportation (UDOT) to change access to their property when the access is located along a state highway. As part of Utah State Law, developers are required to perform a Traffic Impact Study (TIS), which takes time and money. This process also demands a significant amount time and resources from UDOT's Permits Department. As part of the Utah State Law, UDOT can waive a TIS if certain criteria are met. There is a need to increase the efficiency of the permitting process, by reducing the number of access permits requiring a full TIS that do not provide data to help make decisions, and free up valuable time for UDOT's Permits Department. The purpose of this research is to create a semi-automated tool for UDOT to potentially reduce the number of access permits requiring a full TIS. The intent of this tool is to also help reduce the time needed for each permit while protecting UDOT's interest in maintaining safety and traffic flow on state roadways. It is planned to be implemented immediately at the end of the research process and will provide UDOT with a tool to maintain consistency throughout the state and aid in the process to determine if a TIS can be waived.

Initially, data was gathered on current permitting practices and key criteria used when UDOT and developers discuss the need and scope for a TIS. Personnel at each of the UDOT Regions and Dr. Grant Schultz of Brigham Young University (BYU) were interviewed on access management principles and the access permitting processes. Information gathered from the UDOT region interviews recommends that some preparation be completed on the applicant's end before the pre-application meeting. In addition, consistency between UDOT regions is desired as several UDOT regions use slightly different processes; and decision-making criteria, risk management, and crash data were discussed as essential elements to analyze in a TIS. It was also discussed that the tool created must be easy for developers and UDOT personnel to use and improve the number of permit applications completed.

Focused research on 19 agencies was conducted to find best practices that could be applied to Utah. This research consisted of finding access permitting and TIS requirements and guideline documents from online sources. TIS guidelines between UDOT and other agencies in

the industry have several similarities including the design years that are typically analyzed, the analysis period, and the use of Institute of Transportation Engineers (ITE) data for trip generation estimations. The largest discrepancies between UDOT and the industry occur in the application duration and TIS level of study.

Further, to gain a better understanding of access permitting practices in the industry, a survey was created to identify practices other agencies follow to determine the scope of a TIS and access permit application. The survey was sent out to all states and many municipalities in Utah, of which, 27 responses were recorded for 22 states and municipalities. Several responses stated that a TIS is waived when the development has little to no impact on the roadway network, when an access already exists, and/or land uses are similar to those currently existing on the site. Additionally, site trip generation, AM and PM peak hour volumes, adjacent intersection turning movements, and future roadway traffic conditions were the most important information to include in a TIS.

With the findings from the research conducted on current and best practices, a tool was developed to assist in streamlining the access permitting process. The purpose of this tool, titled the Access Permit TIS Form, is to assist developers and UDOT personnel in screening out projects where a TIS can be waived and identify what specific information is needed in a TIS. It will also allow developers and UDOT personnel to have a more productive pre-application meeting as the information gathered through the tool includes the information typically discussed in this meeting. To create this tool, 11 decision criteria were chosen as a starting point in creating relevant questions and flow decisions for the Access Permit TIS Form. This tool is designed for an applicant to be able to complete on their own, but may be used during the pre-application meeting itself. It was created in Microsoft Excel due to its wide use and availability. The Access Permit TIS Form was built in a questionnaire format to create a user-friendly form. A step-by-step example was shown to explain how the tool is meant to be used. This information will help any user navigate the tool and clarify questions that may arise. A list of potential risks associated with the use of the Access Permit TIS Tool have been identified to protect UDOT's interest in maintaining traffic flow and a safe environment on UDOT roads. These include that the answers

and output of the Form are not law or binding in any way; the Form does not eliminate the need for a pre-application meeting; and the Form is not intended to replace a traffic impact study.

Additional recommendations were identified pertaining to the access permitting application process and are based upon information gathered from UDOT Region Permitting interviews and the development of the Access Permit TIS Form. One recommendation includes updating the TIS guidelines by removing TIS levels and access application levels and providing a matrix or an a la carte list for the UDOT Region Traffic Engineer to be able to identify and request the appropriate TIS criteria for each access application. To improve consistency throughout the state, it is recommended that UDOT provide a practical training class to educate UDOT Region Traffic Engineers or UDOT Permits Officers on the UDOT Permitting Process and the application of R930-6. Improvements to the UDOT Access Permit Database were also recommended, including tracking all pre-application meetings in the database and tracking the duration of the pre-application meetings.

1.0 INTRODUCTION

1.1 Problem Statement

Developers are required to obtain approval from Utah Department of Transportation (UDOT) to change access to their property when the access is located along a state highway. As part of Utah State Law, developers are required to perform a Traffic Impact Study (TIS), which takes time and money. This process also demands a significant amount time and resources from UDOT's Permits Department. As part of the Utah State Law, UDOT can waive a TIS if certain criteria are met. There is a need to increase the efficiency of the permitting process, by reducing the number of access permits requiring a full TIS that do not provide data to help make decision, and free up valuable time for UDOT's Permits Department. The purpose of this research is to create a semi-automated tool for UDOT to potentially reduce the number of access permits requiring a full TIS. The intent of this tool is to also help reduce the time needed for each permit while protecting UDOT's interest in maintaining safety and traffic flow on state roadways. It is planned to be implemented immediately at the end of the research process and will provide UDOT with a tool to maintain consistency throughout the state and aid in the process to determine if a TIS can be waived.

1.2 Objectives

The primary objective of this research project was to develop an efficient and semi-automated process (using Microsoft Excel) that will reduce the number of TIS required for access permits while providing important information to UDOT for their evaluation. The second objective of this research project was to protect UDOT's interest to maintain or improve traffic flow and the safety of the State's roadways.

1.3 Scope

Multiple tasks were outlined to achieve the research objectives. These include problem identification, process development, and guideline development and process validation. Initially,

data was gathered on current permitting practices and key criteria used when UDOT and developers discuss the need and scope for a TIS. Interviews were conducted at each UDOT region and UDOT permit data were analyzed to identify current practices across Utah. Focused best practice research was completed and a survey was developed and sent to several municipalities in Utah, DOTs in the United States, and provinces in Canada to assist in gathering data. Upon analyzing the key findings from this research, a process was developed that can be used to determine if a TIS could be waived. A spreadsheet-based tool was created that incorporated the criteria and thresholds found to determine if a TIS could be waived. A guideline was developed to help users navigate the tool and provide UDOT with information to determine TIS needs. Potential risks associated with the process were identified and recommendations for future changes to further streamline the UDOT conditional access permit program were included.

1.4 Outline of Report

This report is organized into the following chapters: 1) Introduction, 2) Background, 3) Methodology, 4) Research Findings, 5) Process Development, 6) Conclusions, and 7) Recommendations. A references section and appendices follow.

Chapter 2 describes the current UDOT access permit application process. Steps in this process, as well as information regarding pre-application meetings and TISs are discussed.

Chapter 3 outlines the four methodologies used in this research, including statewide UDOT regional interviews, focused best practice research, a survey sent to multiple agencies around the country, and the UDOT access permit database.

Chapter 4 discusses the findings of the research conducted using the four methodologies. UDOT and industry processes and guidelines are compared.

Chapter 5 summarizes the process used to develop the Access Permit TIS Form. Design criteria used to create questions for the tool, the flowchart of the tool, and a detailed explanation of the Access Permit TIS Form is found in this chapter. The potential risks associated with this tool are also outlined.

Chapter 6 holds the conclusions of the research conducted and the process used to develop the Access Permit TIS Form.

Chapter 7 lists the recommendations that may be useful streamlining the access application process and the implementation of the Access Permit TIS Form.

2.0 BACKGROUND

2.1 Overview

To regulate state highway access, UDOT has established four permitting programs: access management, encroachment permits, special event permits, and outdoor advertising control. The access management program is the primary focus of this research. This program is meant to regulate the number, size, location, and use of access points connecting to state roads. A Conditional Access Permit application must be "submitted and approved by UDOT before an access on a state highway can be constructed, modified, relocated, or closed" (UDOT 2018). This application is also required when a change in land use or land use intensity occurs on a property with an existing access or the existing access has been unused for at least 12 months (UDOT 2018). This chapter will discuss steps and possible requirements needed to complete the application process, including current application process steps, pre-application meeting, level of application, and level of TIS.

2.2 Current Application Process Steps

As outlined in Figure 2-1, there are five primary steps to the application process: pre-application meeting, application submittal and fee, completeness review, application review, and outcomes. The first two steps are the applicant's responsibility and the last three are UDOTs responsibility. The pre-application meeting is meant to define the application process and discuss feasibility and site-specific issues. After the pre-application meeting and application are completed, it is submitted to UDOT along with a review fee. UDOT takes the application and checks that the applicant submitted the required information and then reviews that all necessary standards are met. Once a decision is made on the approval or denial of the application, the applicant is informed (UDOT 2015b).

A complete access permit application packet includes all the necessary documents needed to complete the permit application. This includes a complete site plan, utility plan, grading and drainage plan, pavement profile, and standard UDOT notes. A TIS is also needed unless UDOT

personnel say otherwise (UDOT 2015a). An application and all application packet requirements can be submitted online through the UDOT Permit Database.

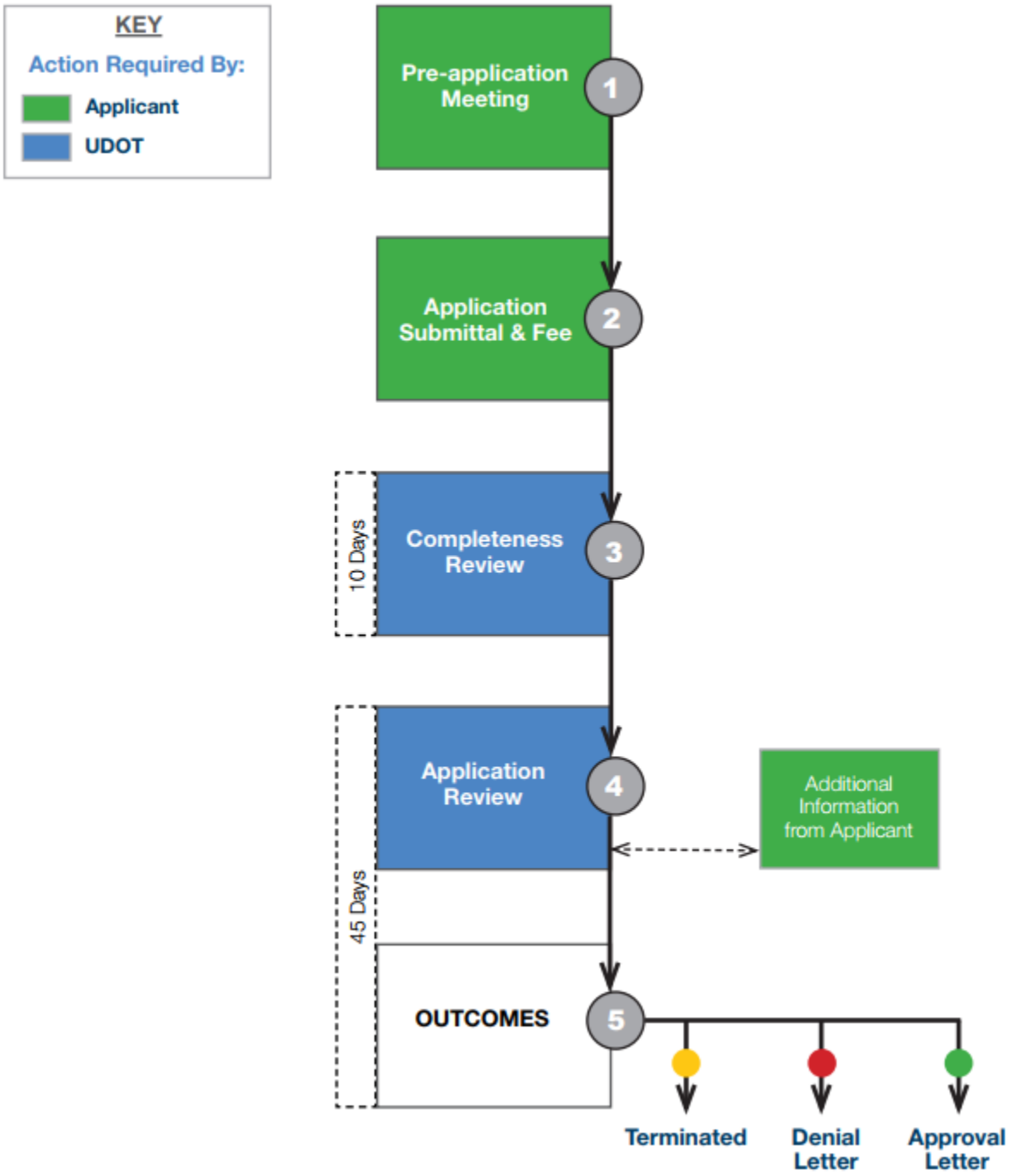


Figure 2-1: UDOT Access Permit Application Process (UDOT 2015b).

2.3 Pre-Application Meeting

The access permitting process can be complex and time intensive, therefore UDOT requires that all applicants schedule a pre-application meeting before applying for a permit. This meeting is held with UDOT personnel and the applicant. UDOT asks that applicants fill out a one-page application form housing property owner, applicant, and site information. This meeting is meant to help the applicant determine access feasibility, site specific issues, and level of the proposed or existing access. Another goal of the pre-application meeting is to assist the applicant in understanding the application process and what is expected of them (UDOT 2015b).

2.4 Access Application Level

There are four types of access application levels. The level is determined based on the size of the project. Elements such as applicant fees and document requirements are determined from the application level. Table 2-1 shows the current threshold values for these levels. As shown, application levels are based on average daily traffic (ADT) volumes or peak hour trips (PHT), though they are also shown in terms of land use intensity (UDOT 2013). Currently these application levels are used in a guideline for determining the TIS level of study.

Table 2-1: UDOT Access Application Level (UDOT 2013; UDOT 2015a)

Level	ADT/PHT	Proposed Modifications	Land Use Intensity
Level I	<100 ADT	No modification to signals or roadway.	A) Single Family: <10 Units B) Apartment: <15 Units C) Lodging: <11 Occupied Rooms D) General Office: <9,000 sq. ft. E) Retail: <2,500 sq. ft.
Level II	100-3,000 ADT <500 PHT	No modifications or minor modifications to signals or roadway.	A) Single Family: 10-315 Units B) Apartment: 15-450 Units C) Lodging: 11-330 Occupied Rooms D) General Office: 9,000-270,000 sq. ft. E) Retail: 2,500-70,000 sq. ft. F) Gas Station: <18 Fueling Stations G) Fast Food: <6,000 sq. ft. H) Restaurant: <26,000 sq. ft.
Level III	3,000-10,000 ADT 500-1,200 PHT	Installation or significant modifications of 1 or more traffic signals or elements of roadway, regardless of project size.	A) Single Family: 316-1,000 Units B) Apartment: 451-1,500 Units C) Lodging: 331-1,100 Occupied Rooms D) General Office: 270,001-900,000 sq. ft. E) Retail: 70,001-230,000 sq. ft. F) Fast Food: 6,000-20,000 sq. ft.
Level IV	>10,000 ADT	Significant modification to two or more traffic signals, addition of travel lanes or modification of freeway interchange, regardless of project size.	A) Single Family: >1,000 Units B) Apartment: >1,500 Units C) Lodging: >1,100 Occupied Rooms D) General Office: >900,000sq. ft. E) Retail: >230,000 sq. ft.

2.5 TIS

A TIS analyzes the effect that traffic generated by a proposed development has on the transportation network. This study is required by State Law for all access applications, however, the law allows UDOT to waive requirements for a TIS if certain criteria are met. As shown in Table 2-2, there are five levels (two for level II) of study for a TIS that are closely based on the four application levels. Each TIS level has slightly different requirements for the study, which can be found in UDOTs Traffic Impact Study Guidelines (UDOT 2015c).

Table 2-2: UDOT TIS Level (UDOT 2015c)

Level	ADT/PHT
Level I	<100 ADT
Level II	a) 100-500 ADT
	b) 500-3,000 ADT; >500 PHT
Level III	3,000-10,000 ADT; 500-1,200 PHT
Level IV	>10,000 ADT; >1,200 PHT

2.6 Summary

The access management program is meant to regulate the number, size, location, and use of access points connecting to state roads. This chapter addressed current UDOT practice and expectations about the application process, the pre-application meeting, access permit levels, and TISs. The current application process includes five primary steps: pre-application meeting, application submittal and fee, completeness review, application review, and outcomes. All steps need to be fulfilled for an access to be granted on a state roadway. A pre-application meeting is a scheduled meeting between the UDOT region and the applicant. This meeting is meant to assist the applicant in understanding what is required of them during the access permit process and address issues specific to the site. There are four types of access permit levels. The access permit level for each application is decided by the size of the proposed development. Current UDOT practice uses the access permit level thresholds as a basis for the thresholds to determine the TIS level of study. A TIS analyzes the effect the traffic generated by a proposed development will have on the existing roadway network. UDOT has five possible TIS levels and a TIS is required for all applications; however, UDOT can waive requirements for a TIS.

3.0 METHODOLOGY

3.1 Overview

The need to improve the permitting process for developers, applicants, and UDOT personnel allowed researchers to analyze access permitting processes in Utah and other areas around the nation. This increased understanding will allow the development of a tool that will increase the efficiency of the permitting process and increase the number of access permits allowing a TIS to be waived. Four main methodologies were used in this research to understand access permitting processes in Utah and other areas around the nation. (1) Statewide UDOT region interviews, (2) focused best practice research on specific areas around the nation, (3) a survey sent to several local Utah municipalities and DOTs around the nation, and (4) data from the UDOT access permit database were researched and analyzed. These four methodologies will be expounded upon in this chapter.

3.2 Statewide UDOT Region Interviews

UDOT region interviews were conducted to gather input from UDOT personnel on the current access application process and their experience working with developers and applicants. Region personnel members of the Technical Advisory Committee (TAC) will be directly impacted by the development of a tool and were contacted to find what improvements to the application process would be useful to them. Dr. Grant Schultz, a professor at BYU was also contacted due to his involvement in access related research and research committees. A copy of general questions used in the interviews can be found in Appendix A.

The following interviews were conducted to increase the understanding of current UDOT permitting practices across the state. Personnel attending the interviews are included:

- UDOT Region 1:
    - TAC Member: Paul Egbert

    - Researcher: David Bassett and Blake Unguren

- UDOT Region 2:
    - TAC Member: Brad Palmer
    - Researcher: David Bassett and Brady Hale
- UDOT Region 3:
    - TAC Member: Austin Tripp, Doug Bassett, and Brian Phillips
    - Researcher: David Bassett and David Bezzant
- UDOT Region 4:
    - TAC Member: Jeff Bunker
    - Researcher: David Bezzant and Brady Hale
- BYU
    - TAC Member: Dr. Grant Schultz, Marlee Seat
    - Researcher: David Bassett and David Bezzant

3.3 Focused Best Practice Research

Focused or spot research was conducted to find best practices that could be applied to Utah. This research consisted of finding access permitting and TIS requirements and guideline documents from online sources. Nineteen agencies were included in this research and are shown in red and orange in Figure 3-1. After consulting with the TAC several local municipalities were chosen to see what practices are occurring throughout the state of Utah. The other locations used in this focused research were selected to create a diverse spectrum of understanding. Urban locations like New York and Florida and rural locations like Montana were selected to assist in

creating this diverse selection of access permitting practices. The Federal Highway Administration (FHWA) was also included in this research.

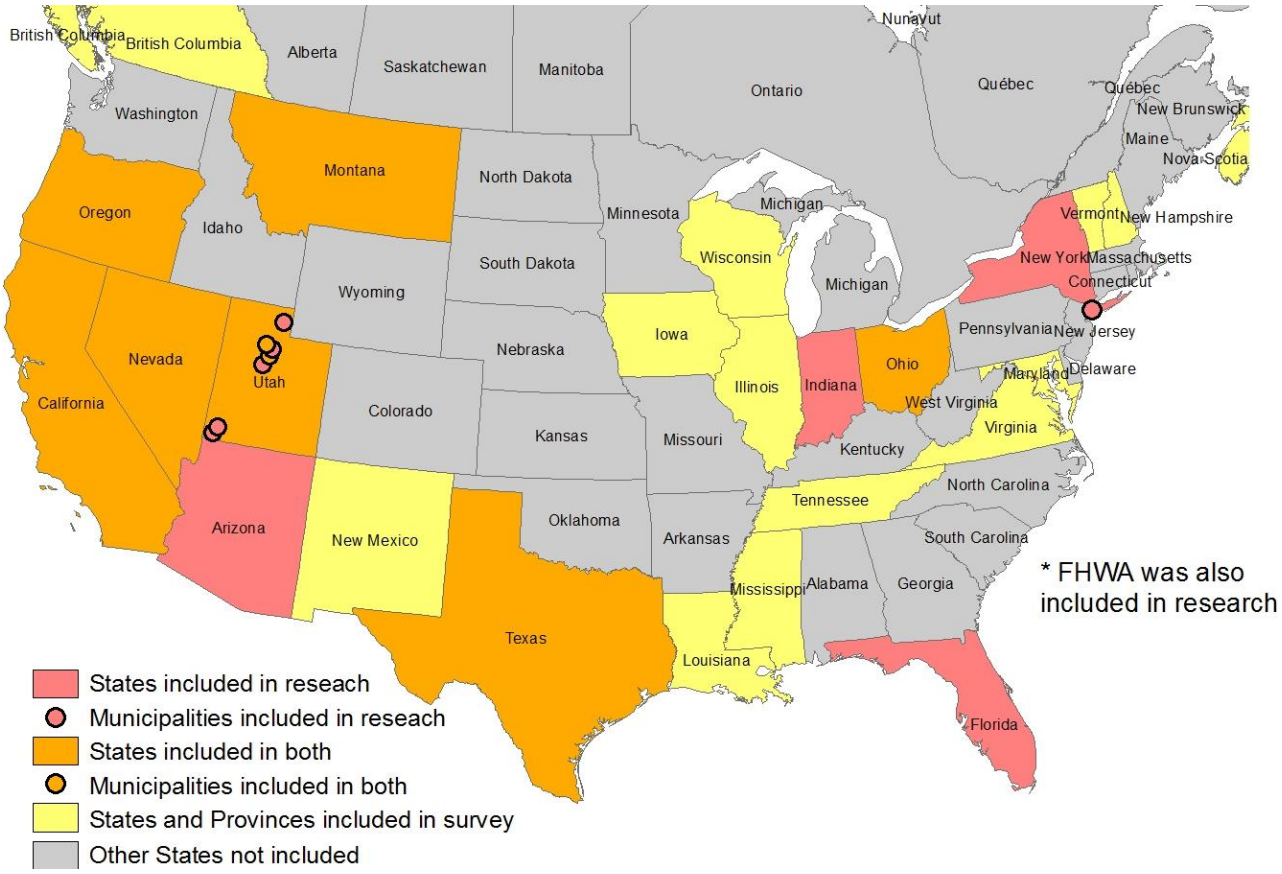


Figure 3-1: Locations included in focused best practice research and survey respondents.

The following lists the nineteen agencies that were included in the focused best practice research:

- Arizona Department of Transportation (ADOT)
- Cache County, UT
- State of California Department of Transportation (CalTrans)
- Florida Department of Transportation (FDOT)

- FHWA
- Indiana Department of Transportation (InDOT)
- Nevada Department of Transportation (NDOT)
- New York City (NYC)
- New York State Department of Transportation (NYSDOT)
- Oregon Department of Transportation (ODOT)
- Ohio Department of Transportation (ODOT)
- Provo, UT
- Salt Lake County, UT
- Sandy, UT
- Spanish Fork, UT
- St. George, UT
- Texas Department of Transportation (TxDOT)
- Utah County, UT
- Washington County, UT

3.4 Survey

To gain a better understanding of access permitting practices in the industry, a survey was created using Google Forms and sent out to agencies across the nation. This survey included questions related to the access permit process and to a TIS. A copy of the survey questions can be found in Appendix C. The purpose of the survey was to identify practices and processes other agencies follow to determine the scope of a TIS and access permit application.

Initially, this survey was created for DOTs, however, municipalities, and Canadian provinces were also included. Figure 3-1 shows, in yellow and orange, the locations of the survey responses. Twenty-two agencies responded to the survey including two Utah cities and two Canadian provinces. Three responses were collected from UDOT and two responses were given by CalTrans, NMDOT, and WisDOT giving a total of 27 survey responses. All the agencies that responded to this survey are listed below:

- UDOT (x3)
- Iowa Department of Transportation (IADOT)
- Virginia Department of Transportation (VDOT)

- New Hampshire Department of Transportation's Bureau of Traffic (NHDOT)
- Louisiana Department of Transportation & Development (LADOTD)
- Maryland Department of Transportation State Highway Administration (MDOT SHA)
- Nevada Department of Transportation (NDOT)
- California Department of Transportation (CalTrans) (x2)
- Mississippi Department of Transportation (MDOT)
- Illinois Department of Transportation (IDOT)
- West Jordan City, UT
- Oregon Department of Transportation (ODOT)
- British Columbia, Ministry of Transportation and Infrastructure
- Vermont Agency of Transportation (VTrans)
- New Mexico Department of Transportation (NMDOT) (x2)
- City of Orem, UT
- Nova Scotia Department of Transportation and Infrastructure Renewal
- Montana Department of Transportation (MDT)
- Texas Department of Transportation (TxDOT)
- Ohio Department of Transportation (ODOT)
- Wisconsin Department of Transportation (WisDOT) (x2)
- Tennessee Department of Transportation (TDOT)

3.5 UDOT Access Permit Database

UDOT has an online application database that allows applicants to upload documents for an access permit application and check the status of an application. UDOT supplied researchers with data from January 14, 2014 through March 29, 2017 that included information on each application that was opened during this period. Table 3-1 shows the data fields that were analyzed. An example of this data can be seen in Appendix D. The purpose of analyzing this data was to find how UDOT finds trends within the access permitting system, how it is currently working, and where improvements might be made. This data was analyzed several different ways including statewide, by UDOT region, and by year. In addition, TIS submittals and application duration were specifically analyzed. Analyzing the data several ways allowed researchers to gain a wide understanding of how the UDOT access permit process is working.

3.6 Summary

Four methodologies were used in this research to understand access permitting processes in Utah and other locations around the nation. Interviews were conducted with personnel from each UDOT region and BYU to gain a better understanding on current application practices and gather input on what improvements would be beneficial to make to the current process. Additionally, focused research was conducted to find best practices that could be applied to Utah. Access permitting and TIS requirements and guideline documents were found from online sources for 19 agencies. These 19 agencies were chosen for the focused research to create a diverse spectrum of understanding of practices around the nation. Third, a survey was created and sent to DOTs, municipalities, and Canadian provinces to identify practices and processes agencies follow to determine the scope of a TIS and access permit application. Twenty-two agencies responded to this survey. Finally, UDOT has an online application database that allows applicants to upload documents for a permit application and check the status of an application. UDOT supplied researchers with three years of data to find how UDOTs access permitting system is currently working and where improvements can be made. This data was analyzed several different ways and allowed researchers to gain a wide understanding of how the UDOT access permit process is working.

Table 3-1: UDOT Access Permit Database Data Columns

Access Permit Database Data Columns
APPLICATION ID
Reason for Termination
Level
Max PH Trips
ACCESS PERMIT TYPE
ACCESS USE TYPE
APPLICATION DATE
LIMITED ACCESS
NO ACCESS
APPEAL
VARIANCE
CURRENT STATUS
STATUS DATE
Duration (App to Status date)
Pre-app to App date
ACCESS CATEGORY
ORIGINAL DISTRICT
PREAPPLICATION MEETING
MEETING DATE
TIS
PURPOSE
PHYSICAL ADDRESS
ESTIMATED BEGIN DATE
ESTIMATED END DATE
COMMENTS
ROUTE
CITY
COUNTY
DIRECTION
BEGIN POST
END POST
DD LATITUDE
DD LONGITUDE
PAVEMENT TYPE

4.0 RESEARCH FINDINGS

4.1 Overview

Research was performed on current permitting practices in Utah and other states and municipalities across the United States. Key findings from the statewide UDOT region interviews, focused best practice research, the survey created, and the access permit database will be summarized in this chapter. These key findings allowed researchers to understand the access permitting processes and TIS requirements that are widely used. This research was compared to UDOTs current practice to find places where the process could be streamlined. These key findings were used to create decision criteria that would be used in the development of a tool to see when a TIS may be waived.

4.2 Statewide UDOT Region Interviews

Personnel at each of the UDOT Regions and Dr. Grant Schultz were interviewed on access management principles and the access permitting processes. Discussions held at these meetings specifically included pre-application meeting developer preparations, statewide permitting consistency, criteria for waiving a TIS, data and analysis to include in a TIS, and recommendations for an access permitting process tool. Interview notes from these meetings can be found in Appendix A. This section will outline key findings from all interviews conducted in each of the areas described above.

4.2.1 Pre-Application Meeting Developer Preparations

To improve the quality of the pre-application meeting and provide required decision-making information for the application process, applicants should come to the pre-application meeting with certain information regarding the development. It is recommended from the interviews conducted that a preliminary site plan and an education of Administrative Rule R930-6 be completed before the pre-application meeting. In addition, land uses should be defined for

the proposed development and trip generation numbers for daily and peak hour trips are recommended.

4.2.2 Statewide Permitting Consistency

To provide consistency between the UDOT regions, several resources were noted that could provide value. An optimized permit processing platform and consistent statewide requirements for all applicants would be useful in providing statewide consistency across UDOT regions. In addition, a guideline regarding permit decision making and TIS requirements that is applicable to all levels of UDOT personnel would also be useful.

4.2.3 Criteria for Waiving a TIS

Criteria for waiving a TIS varied across the UDOT regions, however a few criteria were found to be consistent. These included situations where there was little traffic generated by the site, where no mitigations or improvements are required or able to be completed and where the applicant was removing accesses. It was also noted that the waiving of a TIS could be used in the negotiations for improvements and mitigation.

4.2.4 Data and Analysis to Include in a TIS

Several TIS requirements were identified during the UDOT region interviews. These include decision making criteria, risk management, and a crash data analysis. Multi-modal and pedestrian impacts, project phasing and future development, and required mitigations were also identified as information that should be required in a TIS.

4.2.5 Recommendations for an Access Permitting Process Tool

Recommendations for a tool to help facilitate the access permitting process were given during the region interviews. The tool must be easy for developers and UDOT personnel to use and it should improve the percentage for applications that go from the pre-application meeting to a completed permit. A concise list of items required for an efficient and timely review for all states of the permitting process would be useful for applicants going through the application

process. Access density, an important factor in an access permit, was also mentioned as an important discussion that might be benefitted by additional tools.

4.3 Focused Best Practice Research

Nineteen agencies were chosen for focused research to assist in summarizing best practices occurring around the nation. Sample TISs and other DOT and municipal access permit documents were found. The information collected from this research is shown in Appendix B. Key findings from this research, specifically analyzing TIS guidelines and formatting will be summarized in this section. Current UDOT and industry guidelines will be compared in this section.

Table 4-1 compares TIS guidelines between UDOT practices and the industry. There are several similarities including the design years that are typically analyzed, the analysis period, and the use of Institute of Transportation Engineers (ITE) data for trip generation estimations. It is recommended by both groups that crash data should be analyzed and a Level of Service (LOS) analysis should be conducted to determine mitigation requirements.

The largest discrepancies occur in the application duration and TIS level of study. UDOT has a faster permit application duration. A completeness review for the application is completed in 10 days rather than 30 days found in other agencies within the industry. In addition, the application review process is completed by UDOT in 45 days while other agencies take 60-120 days to complete that process. Note that only a few industry agencies had application duration data available. Another large difference between UDOT and the industry is in the TIS level of study. The data collected from other agencies have on average three different TIS levels of study all based on the number of peak hour trips. UDOT, in contrast, uses five different levels of study that are based on the ADT of the roadway or the number of peak hour trips calculated (not available on all levels).

The format for a TIS is similar between UDOT and the industry for all possible sections as outlined in Table 4-2. The agencies reviewed included additional definitions and details as

part of the outline for each TIS format item. General prescriptions for each TIS format item are described in Table 4-3.

Table 4-1: TIS Guidelines: UDOT vs Industry

	UDOT	*Industry*
TIS Waived By	Region Traffic Engineer	Agency Engineer
Study Area Defined By	Department	Agency Engineer or Reviewer
Design Years	Opening, 5, 20, phases	Opening, 5, 20, phases, buildout
Analysis Period	Weekday AM and PM, Saturday/Noon/Other if needed	Weekday AM and PM, Saturday/Noon/Other if needed
Trip Generation	ITE, Trip Rate Study	ITE, Local, Secondary Data
Conflict Analysis	Crash and Traffic Safety Analysis, Existing vs. Proposed	ITE Recommended Practice, 3-5 Years of Crash Data
Capacity Analysis	LOS Analysis- intersections, existing conditions, horizon years with & w/o development	LOS Analysis, determined by agency engineer
TIS/Format	Recommended Outline	Recommended Outline
Permit Application Duration	Completeness review-10 days Application review-45 days	Completeness review-30 days Application review-60-120 days (limited info)
Level of Study	I. <100 ADT<100 ADT II. 100-500 ADT III. 500-3,000 ADT >500 PHT IV. 3,000-10,000 ADT or 500-1,200 PHT V. >10,000 ADT or >1,200 PHT	I. < 100 or 50-100 PH trips only if "problem" area II. 100-500 PH trips III. >500 PH trips Or I. 100-500 PH trips II. 500-1,000 PH trips III. >1,000 PH trips

Table 4-2: TIS Formatting: UDOT vs Industry

TIS Format Item	*UDOT*	*Industry*
Executive Summary/Introduction	Y	Y; Prescription
Proposed Development	Y	Y; Prescription
Study Area	Y; Limited Prescription	Y; Prescription
Existing Conditions	Y	Y; Prescription
Projected Traffic	Y; Limited Prescription	Y; Prescription
Safety Analysis	Y	Y; Limited Prescription
Capacity Analysis	Y; Limited Prescription	Y; Limited Prescription
Conclusions/Recommendations	Y	Y; Limited Prescription
Appendices	Y; Prescription	Y; Prescription
Figures/Tables	Y; Prescription	Y; Prescription

Y	=	Yes, this topic included in the recommended TIS format
Prescription	=	There is a more detailed outline for the TIS format item
Limited Prescription	=	There is a partial outline included for the TIS format item

Table 4-3: TIS Formatting General Prescriptions

TIS Format Item	*General Prescriptions*
Executive Summary	Site location, Study area, Development description, Findings
Proposed Development	Site location, Site plan, Land use, Zoning, Development details
Study Area	Study area, Site accessibility, Existing & future roadway system
Existing Conditions	Physical characteristics, Existing volumes, Pedestrian/bike access, LOS & safety of existing
Projected Traffic	Background volumes, Trip generation, Trip distribution, Trip assignment, Site % non-site traffic, Total traffic, Internal circulation
Safety Analysis	Crash rates & average rates, Safety deficiencies
Capacity Analysis	LOS analysis for site & non-site conditions, Mitigation measures
Conclusions/Recommendations	Site access, Traffic impact of development, Roadway improvements, TDM
Appendices	Traffic counts, Capacity analysis, Crash data, Traffic signal needs
Figures/Tables	Site location, Existing transportation system, Peak hour volumes, Collision diagram, Trip generation, Directional distribution, Site & non-site & total traffic, LOS, Improvements

4.4 Survey Summary

A survey was created to identify practices and processes other agencies follow to determine the scope of a TIS and access permit application. These responses were useful in identifying how UDOT's permitting process could be streamlined to improve the quality and efficiency of the system for requesting access onto the state roadway network. The results of the survey are displayed in Appendix C. The key findings from agency responses and unique practices identified will be discussed in this section.

4.4.1 Key Findings

The survey was sent out to all states and many municipalities in Utah, of which, 27 responses were recorded for 22 unique states and municipalities. The following information is a summary of some of the survey responses. Information regarding access applications and TIS practices and requirements will be discussed.

Currently, UDOT requires a nonrefundable access application fee. The fee amount is based on the application level. One question in the survey asked what an access application typically includes. Thirteen responses stated the agency charges a fee with an access application, seven responses stated the agency does not charge a fee, and seven responses did not specify that an application is needed.

An application duration question was asked in the survey. As shown in Figure 4-1, it was found that 14 respondents stated access permit applications are approved within 60 days. Other responses stated it depends on the site and complexity of the proposed development. UDOT has set the goal to approve applications within 45 days.

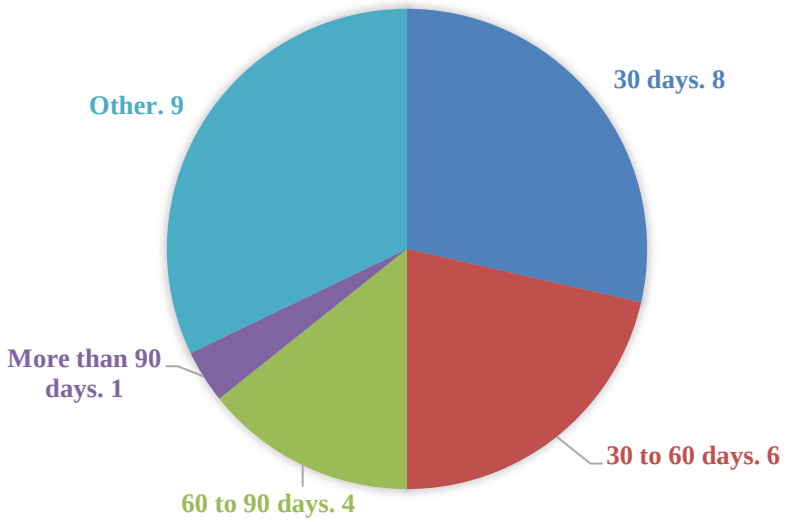


Figure 4-1: Access permit application duration.

Researchers were interested in finding when in industry a TIS may be waived. Several responses stated that a TIS is waived when the development has little to no impact on the roadway network, when an access already exists, and/or land uses are similar to those currently existing on the site. Other respondents stated that if a developer agrees to do improvements proposed by the agency, personnel will waive a TIS. In addition, if no amount of improvements will help traffic or the adjacent roadway is a five-lane road then a TIS may be waived by some agencies. Ultimately, the data from the survey showed that the department personnel will use their best judgment to decide whether a TIS can be waived.

Helpful decision-making information that can be gained from a TIS is outlined in Figure 4-2. This figure compares the 24 responses from the industry agencies with the three responses received from UDOT personnel. Looking at industry agencies' responses, roadway geometry and a proposed site plan was the most popular answer with 79 percent of responses. Seventy-five percent of responses selected anticipated site traffic projections and anticipated queuing. UDOT responses identified anticipated site traffic projections, anticipated queuing, and a safety analysis

as the most important information received from a TIS. This information is helpful in identifying whether a full TIS needs to be completed for every access request or if certain analyses can be conducted in place of a full TIS.

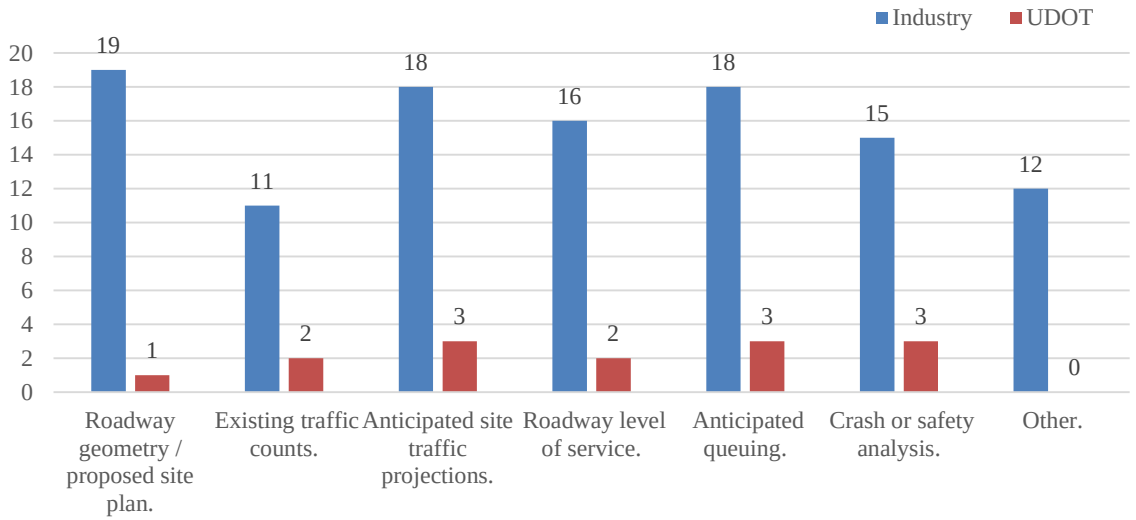


Figure 4-2: Helpful decision-making information from a TIS.

It was asked, what are the easiest ways for developers and engineers to determine the access application requirements: through the agency website, the agency zone ordinance or state law, or a meeting with the agency. Sixty-seven percent of total respondents stated that meeting with the agency is the best way to know what is required. Twenty-two percent of respondents; one response from UDOT, Louisiana DOTD, Montana DOT, NMDOT, WisDOT, and Tennessee DOT; all stated that the agency website is the easiest way to know what is required.

A question regarding what a TIS should include and analyze was asked. As shown in Figure 4-3, five responses each had a total of 24 responses between UDOT and other agencies. These include site trip generation, AM and PM peak hour volumes, adjacent intersection turning movements, and future roadway traffic conditions.

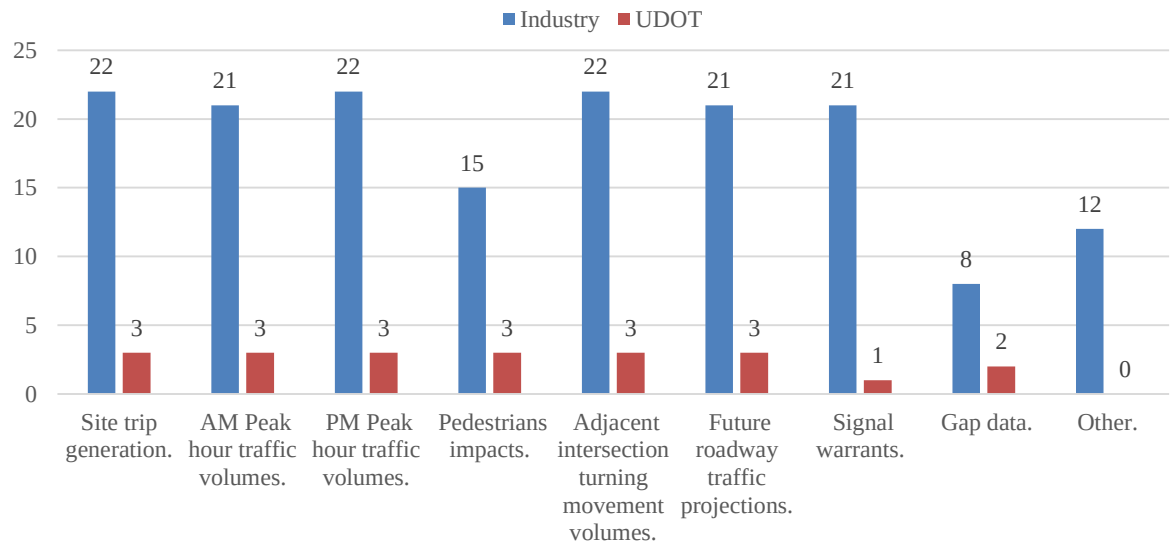


Figure 4-3: Information a TIS should include and analyze.

4.4.2 Unique Practices

Four agencies, Virginia DOT, Caltrans, Mississippi DOT, and West Jordan City, Utah, all specified practices that they have implemented that are unique to that agency. These unique practices are described in this section.

Virginia DOT has spacing exceptions outlined in their regulations and have developed unique spacing standards for multimodal activity centers. In addition, a specified alternative trip generation methodology has been developed for urban areas and transit-oriented developments. Lastly, included pedestrian and bicycle service is based on vehicle trip reduction methods.

Caltrans uses a “full build” or “build out” scenario of the network where all the accumulated demand is placed on the road system if all the available land, roads, transit, bicycle, and pedestrian networks are fully built without financial constraints. Doing this provides transportation corridors to be developed in phases, if necessary, without removing buildings.

If developments are expected to develop in phases over a time of 5-10 years or more, then the permittee for Mississippi DOT will likely be the local public agency rather than the developer. Most agencies would keep the developer as the permittee.

West Jordan City, Utah has chosen five pre-qualified engineering firms that can do a TIS for the city. If this were not so, the cheapest and subpar firms would be doing all the TISs for the developers in the city. This ensures that good quality work is performed for each TIS.

4.5 UDOT Access Permit Database Summary

UDOT provided researchers with about three years of data from their access permit database. This information was analyzed several different ways: in terms of general statistics, statewide, by application status, by UDOT region, by UDOT region and year, and by applications that were terminated. Utah State Law allows UDOT to waive the TIS requirement on either a Level I or II applications. Based on this information only data from Level I and II were analyzed. This section will outline key findings for each analysis. A more detailed analysis can be found in Appendix D.

4.5.1 General Statistics

Table 4-4 shows a summary of all the Level I and II access permit applications from 1/14/2014 to 03/29/2017, which were received from UDOTs access permit database. The '% of Apps' column shows the percentage of applications that were Level I and II for each region, as well as the total applications that were from that region. Generally, there are more Level II applications than Level I applications. Most of Level I and II applications were received from Region 2 at 123 applications, which is 40 percent of all applications. This is followed by Region 3 with 94 applications which is 31% of all applications.

All regions had a high rate of permits issued for the applications, except for Region 1, which only had 70 percent of their Level I applications accepted, and 78 percent of their Level II applications accepted. Region 1 and 3 had the most variances requested with their permit applications. Region 1 had 80 percent of the Level I applications and 97 percent of the Level II

applications submit a TIS, but still have a lower rate of permit issued. No data was gathered to determine the cause of variation between regions.

The number of applications by year is shown on the far right, with most of the sample data coming from 2015-2016. Statewide the Level II applications were the most common access permit requested. With those applications, 96 percent of the Level I and 87 percent of the Level II had a permit issued.

Table 4-4: Dataset Summary Table

Region	Level	%/# of Apps	%/# Permit Issued	%/# Requested Variance	%/# Submitted TIS	Application Year			
						2017	2016	2015	2014
Region 1	1	15%	70%	20%	80%	1	2	5	2
	2	85%	78%	52%	97%	8	15	24	11
	1 & 2	68	52	32	64	9	17	29	13
Region 2	1	51%	100%	3%	13%	4	21	25	13
	2	49%	85%	8%	58%	7	23	20	10
	1 & 2	123	114	7	43	11	44	45	23
Region 3	1	36%	97%	32%	12%	4	9	21	-
	2	64%	98%	30%	23%	7	24	23	6
	1 & 2	94	92	29	18	11	33	44	6
Region 4	1	48%	90%	0%	10%	-	8	1	1
	2	52%	82%	0%	18%	1	9	1	-
	1 & 2	21	18	-	3	1	17	2	1
Total	1	38%	96%	13%	18%	9	40	52	16
	2	62%	87%	28%	57%	23	71	68	27
	1 & 2	306	276	68	128	32	111	120	43

4.5.2 Statewide

The access permit data received from UDOT was analyzed statewide. Figure 4-4 and Figure 4-5 show access applications where a TIS was submitted for all regions in the state. Figure 4-4 shows that 82 percent of the Level I applications had the requirement for a TIS waived. Figure 4-5 shows that 43 percent of the Level II applications had the requirement for a TIS waived. Figure 4-6 divides all access applications by access type. The percentage of

applications with a blank field under access type is notable at 24 percent. These applications are not isolated to a single region or year, with the highest occurrences in 2015 and in Region 2.

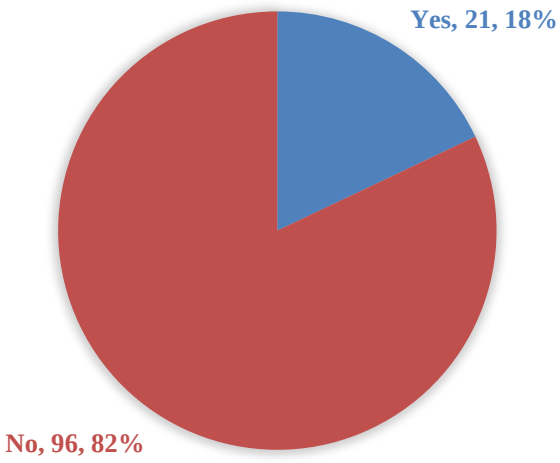


Figure 4-4: Statewide TIS submissions for Level I applications.

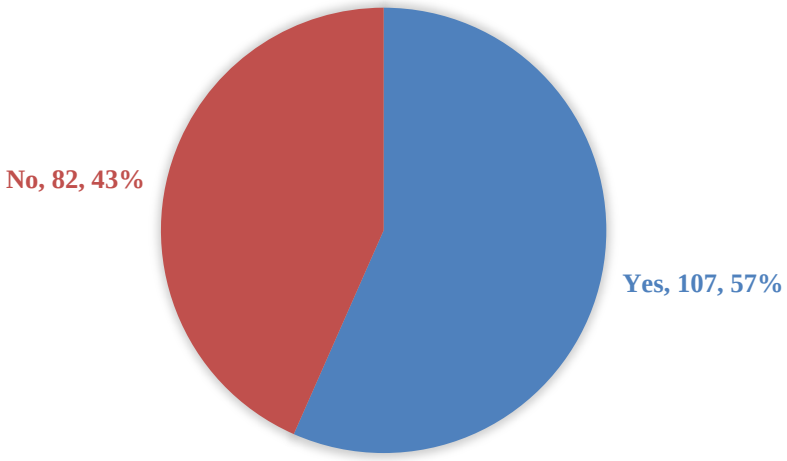


Figure 4-5: Statewide TIS submissions for Level II applications.

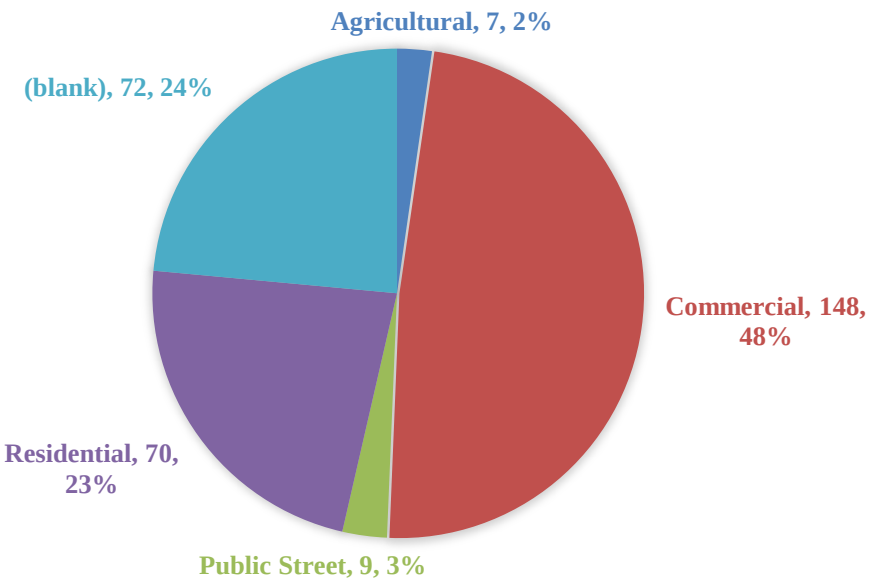


Figure 4-6: Statewide breakdown of Level I and II applications by access use type.

4.5.3 Duration & Current Status

Figure 4-7 shows the duration in days from the application submittal date to the status at the date of data collection. The figure also shows the number of applications for each application status for all Level I and II applications. The duration includes UDOT days and customer days and was calculated from the date the application was submitted to the date of the last status update. UDOT days are the days when the application is under UDOT review, while customer days are counted when the customer needs to make modifications to the application. As shown, the number of applications in process were small and the majority were issued, however, additional data would help to provide a more accurate representation of the duration UDOT spends on applications. Figure 4-8 and Figure 4-9 show the number of applications by region under the current application status. A few applications were terminated or denied, and the majority were issued.

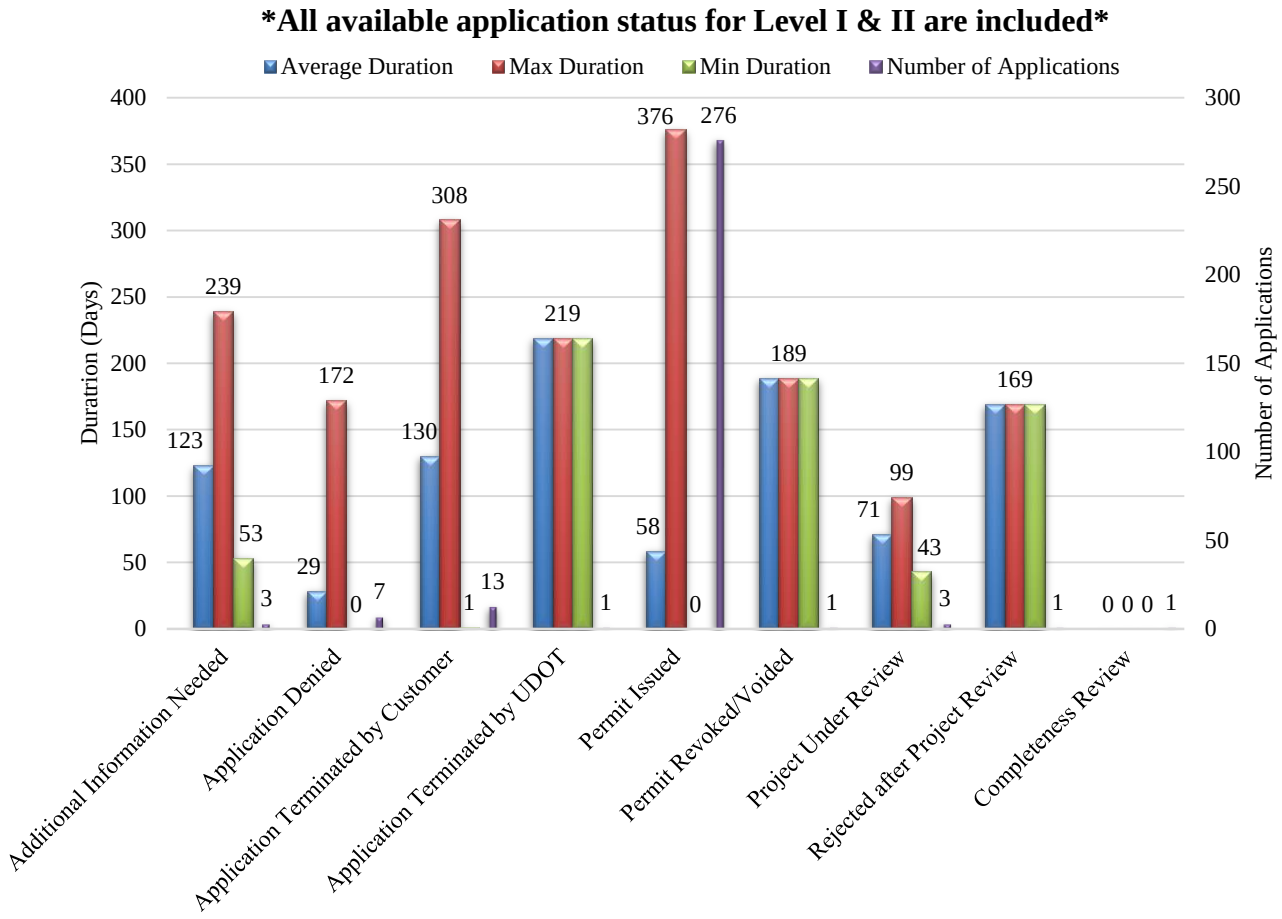


Figure 4-7: Duration in days for all regions, including both UDOT and customer days.

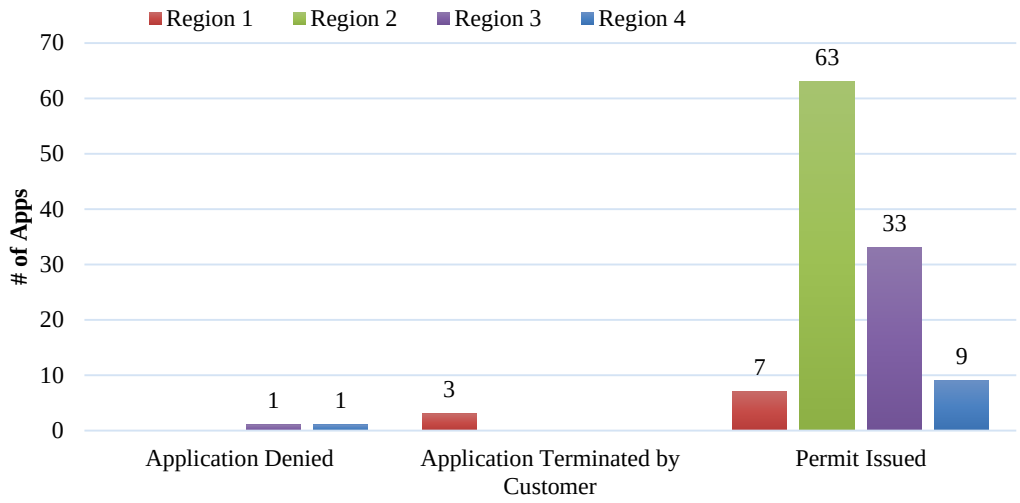


Figure 4-8: Number of Level I applications by current status.

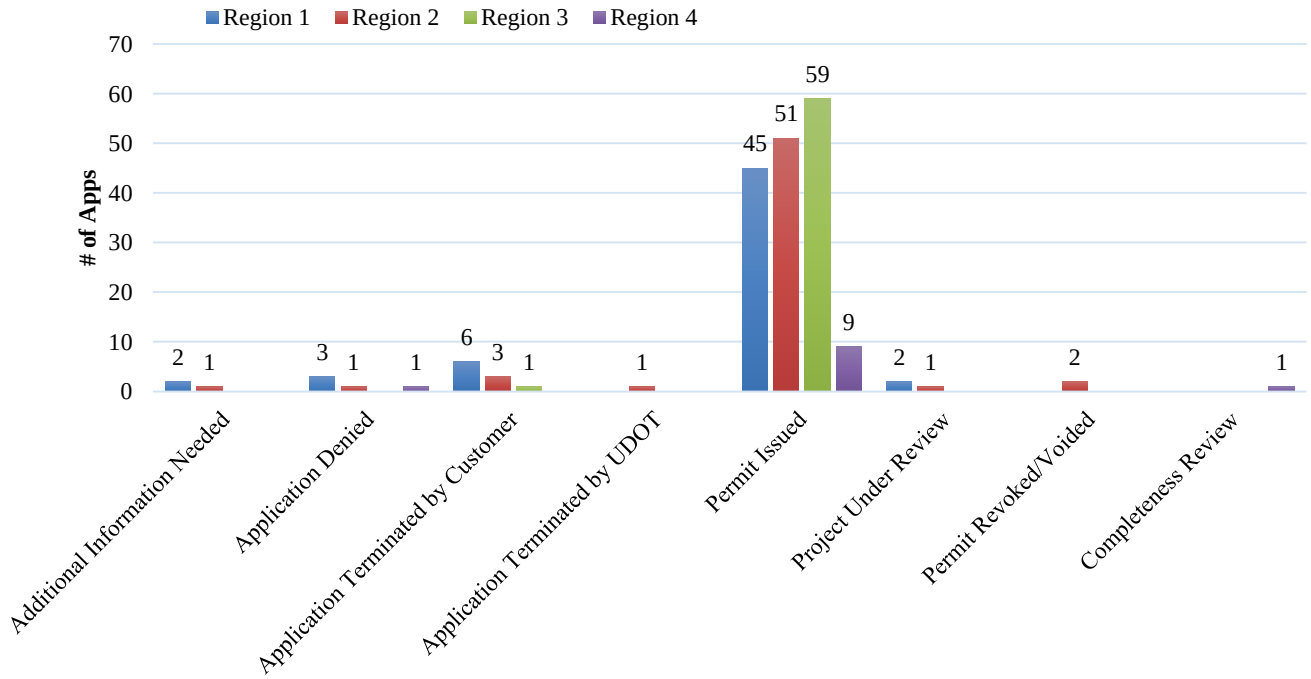


Figure 4-9: Number of Level II applications by current status.

4.5.4 Regions

Figure 4-10 shows the Level I and II applications by UDOT region for applications where a TIS was submitted. Regions 1 and 2 had the highest amount of TISs submitted with a combined 84 percent, while Region 3 and 4 accounted for a combined 16 percent. Figure 4-11 shows a similar graph but includes the number of applications that did not submit a TIS. It is shown that Regions 2 and 3 had the most Level I and II applications that did not submit a TIS.

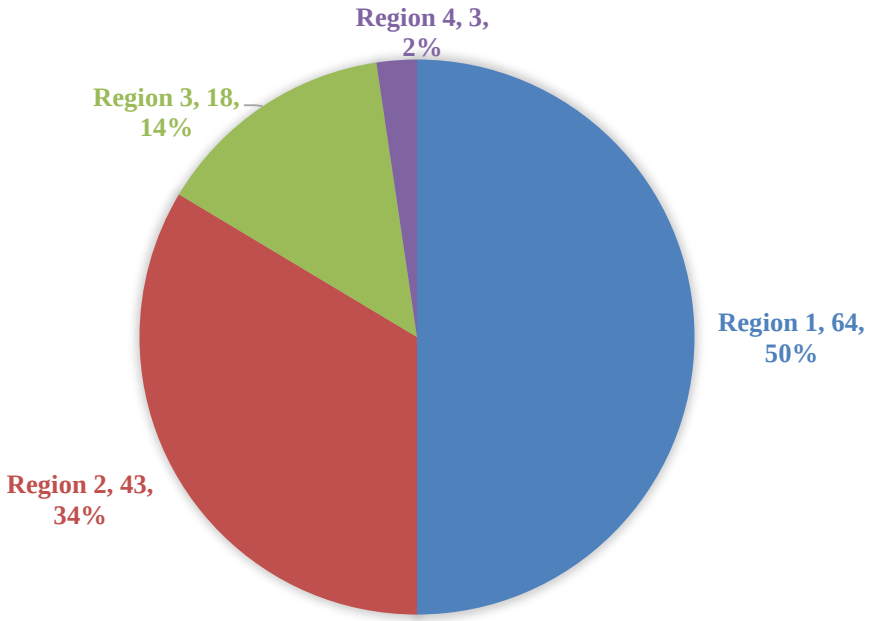


Figure 4-10: Permit applications with a TIS by Region.

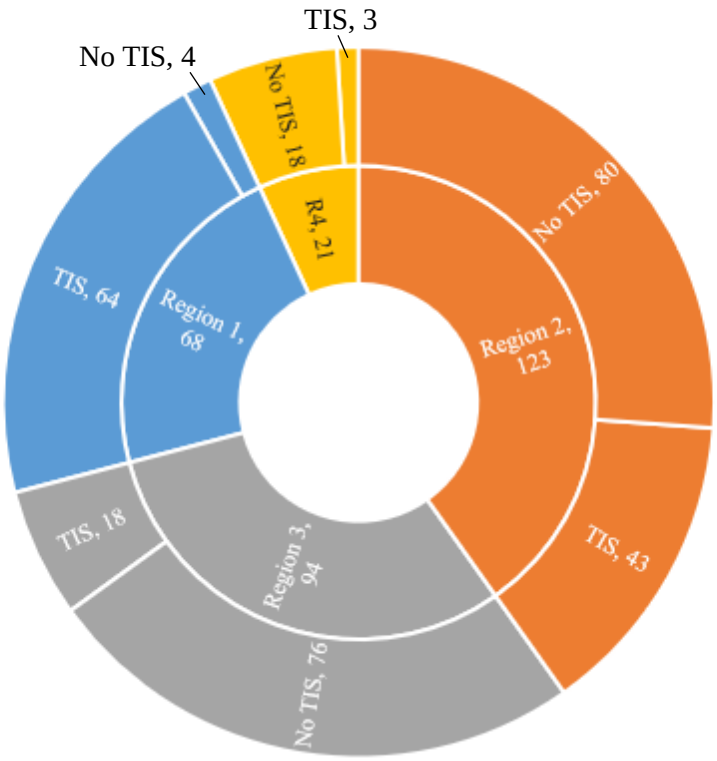


Figure 4-11: Number of applications with and without a TIS by Region.

4.5.5 Region and Year

A review of the three years of data that were provided and discussions with UDOT, indicated that the accuracy of the data has improved over the years, so the number of applications and TISs submitted were analyzed by year. Table 4-5 and Figure 4-12 show how the number of applications submitted has changed over the years. Little changes can be seen, though the general trend shows that 2014 had the lowest values and 2015 had the highest number of applications submitted. Note that 2017 only includes three months of data and cannot be counted as a full year. Table 4-6 and Figure 4-13 show the number of TISs submitted over the years. Small changes but similar trends from Table 4-5 and Figure 4-12 can be seen.

Table 4-5: Applications by Region and Year

Region	Level	# of Apps	% of Apps	Application Year			
				2017*	2016	2015	2014
Region 1	1	10	3%	1	2	5	2
	2	58	19%	8	15	24	11
Region 2	1	63	21%	4	21	25	13
	2	60	20%	7	23	20	10
Region 3	1	34	11%	4	9	21	0
	2	60	20%	7	24	23	6
Region 4	1	10	3%	0	8	1	1
	2	11	4%	1	9	1	0
Total	1	306	100%	43	120	111	32
*Note: Data represents only the first three months of 2017.							

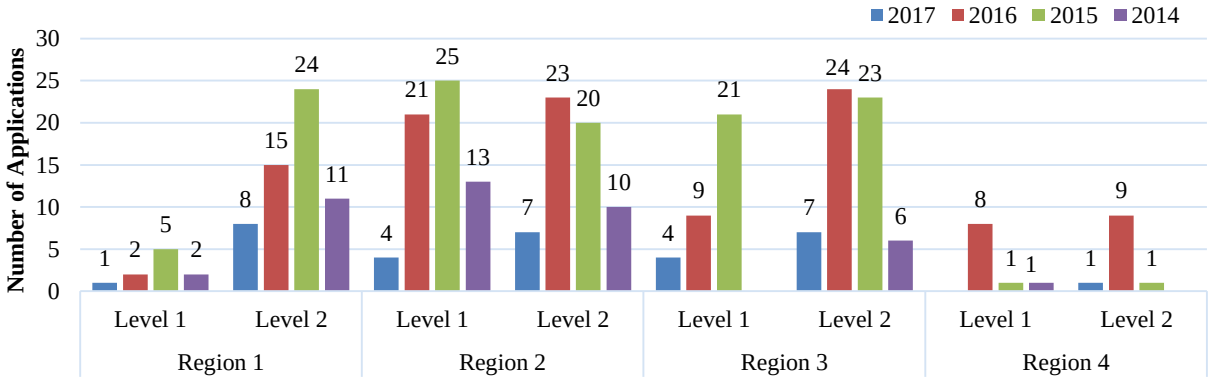


Figure 4-12: Number of applications by region and year.

Table 4-6: Number of TISs by Region and Year

Region	Level	# of TIS	% of TIS	Application Year			
				2017*	2016	2015	2014
Region 1	1	8	6%	0	2	5	1
	2	56	44%	8	15	24	9
Region 2	1	8	6%	0	3	4	1
	2	35	27%	4	13	12	6
Region 3	1	4	3%	0	1	3	0
	2	14	11%	0	4	7	3
Region 4	1	1	1%	0	1	0	0
	2	2	2%	0	2	0	0
Total	1	128	100%	12	41	55	20
*Note: Data represents only the first three months of 2017.							

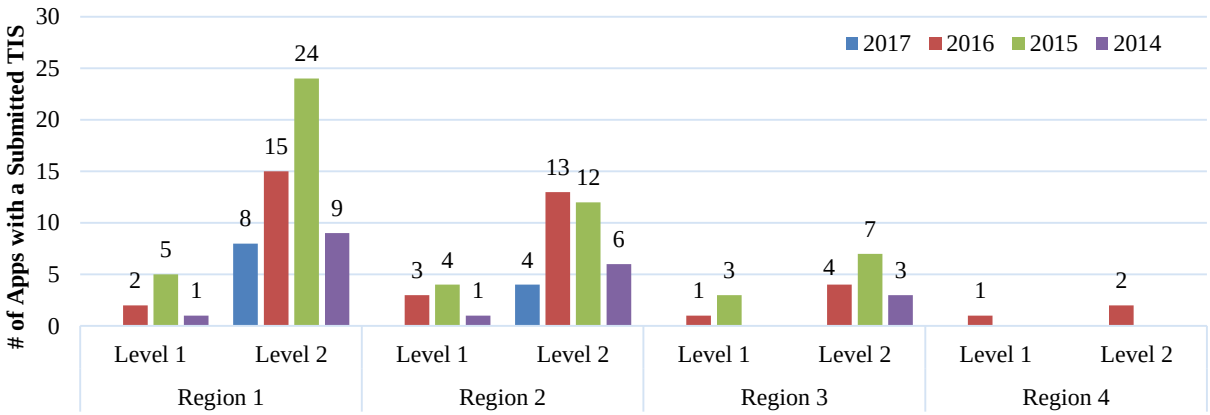


Figure 4-13: Number of submitted TISs by region and year.

4.5.6 Terminated/Waived

Though most of the permit applications were issued, as shown in Figure 4-14, there were a few applications that were terminated by the customer and UDOT. There was a question as to why these applications were terminated and it was found that the application terminated by UDOT was primarily due to no communication. Common reasons that an application was terminated by the customer included the project was on hold, they asked to close the application, they were waiting for more information, inactivity, and the customer closed the application but could resubmit with no charge.

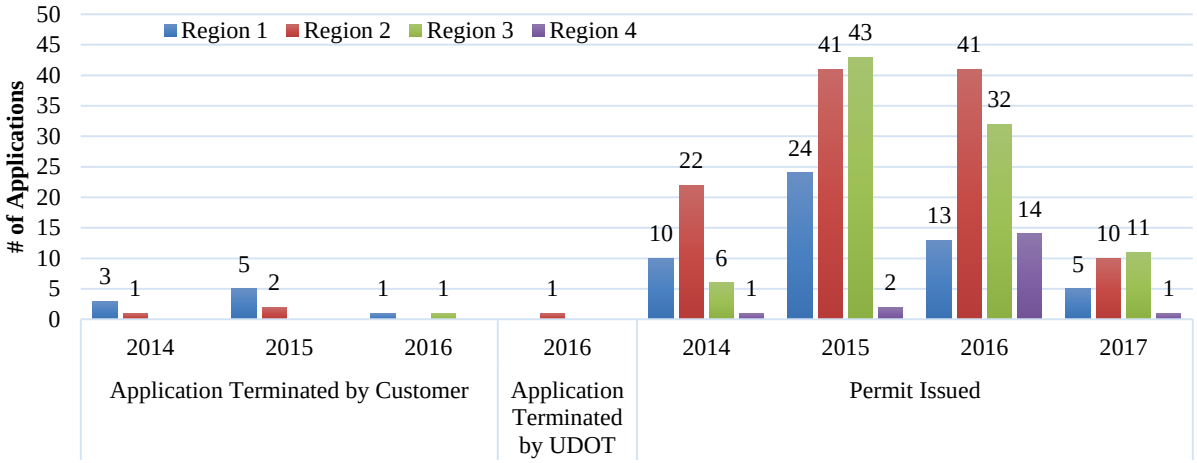


Figure 4-14: Terminated/Issued applications by region and year.

There was also a question as to how many applications had a TIS waived but little data was found on that. Only 16 applications specifically note that the TIS was waived. Six of those applications were for single residence homes, while the others had no reason outlined. No information could be found on the other applications where a TIS was not conducted about whether the TIS was waived or not. The possible reasons as per a discussion with UDOT are: waived but not noted in the system, or a TIS was provided but not uploaded to the database.

4.6 Summary

Key findings from the statewide UDOT region interviews, focused best practice research, the survey created, and the access permit database was discussed in this chapter. These key findings allowed researchers to understand the access permitting processes and TIS requirements that are widely used. UDOT region interviews recommend that some preparation be completed on the applicants end before the pre-application meeting. In addition, consistency between UDOT regions is desired as several UDOT regions use slightly different processes; and decision-making criteria, risk management, and crash data were discussed as essential elements to analyze in a TIS. It was also discussed that the tool created must be easy for developers and UDOT

personnel to use and improve the number of permit applications completed. Through the other methodologies used, key findings included that the agencies in the industry use PHT as a threshold for level of study; UDOTs permit application duration is consistent with half of the agencies that had application duration data available; a TIS may be waived if the impacts of the development are minimal or an access exists and similar land uses are proposed; and most agencies find that applicants learn permit requirements by meeting with agency personnel.

5.0 PROCESS DEVELOPMENT

5.1 Overview

With the findings from the research conducted on current and best practices, a tool was developed to assist in streamlining the access permitting process. The purpose of this tool, titled the Access Permit TIS Form, is to assist developers and UDOT personnel in screening out projects where a TIS can be waived and identify what specific information is needed in a TIS. It will also allow developers and UDOT personnel to have a more productive pre-application meeting as the information gathered through the tool includes the information typically discussed in this meeting. This tool is designed for an applicant to be able to complete on their own, but may be used during the pre-application meeting itself. It was created in Microsoft Excel due to its wide use and availability. The Access Permit TIS Form was built in a questionnaire format to create a user-friendly form. This chapter will discuss the process to create this tool including the decision criteria that should be used in waiving a TIS, a flowchart created to visualize tool questions and decisions, the development and interface of the Access Permit TIS Form, and potential risks that are posed by this tool.

5.2 Decision Criteria

The research findings were used to create decision criteria. Eleven initial criteria were selected because they are part of the access permitting process and can assist in the decision to waive a TIS. These criteria were used as a starting point in creating relevant questions and decisions for the development of the tool. Each criterion will be explained in this section.

5.2.1 Trip Generation

Trip generation is important because it determines the application and TIS level of study and gives a rough idea of the impact the development may have on the adjacent street. If the trip generation falls into a study Level III or IV, the TIS by state law cannot be waived.

5.2.2 Land Use

Land use changes can assist in determining whether a TIS needs to be completed. Based on data from UDOT, fast food developments, for example, are less likely to have a TIS waived, while residential or agricultural land have a high likelihood of the TIS being waived.

5.2.3 Access Category

Access category (AC) will narrow the path of the decision tree. Each state roadway is assigned an AC. The AC of a roadway assists in determining how closely spaced driveways and intersections should be to create a safe network for vehicles. UDOT has 10 AC values which are shown in Table 5-1. Knowing the AC may allow certain objective criteria that are not as relevant or useful for that category to be skipped. If the roadway is an AC 1, it will be declined because no access is allowed on the freeway.

Category			Minimum Driveway Spacing (feet)	Minimum Street Spacing (feet)	Minimum Signal Spacing (feet)
1	Freeway/interstate system facilities (I).	(I)	N/A	N/A	N/A
2	System priority-rural importance (S-R).	(S-R)	1,000	1,000	5,280
3	System priority-urban importance (S-U).	(S-U)	N/A	N/A	2,640
4	Regional-rural importance (R-R).	(R-S)	500	660	2,640
5	Regional priority-urban importance (R-PU).	(R-PU)	350	660	2,640
6	Regional-urban importance (R-U).	(R-U)	200	350	1,320
7	Community-rural importance (C-R).	(C-R)	150	300	1,320
8	Community-urban importance (C-U).	(C-U)	150	300	1,320
9	Other importance (O).	(O)	150	300	1,320
10	Freeway one-way frontage road (F-FR).	(F-FR)	N/A	660	1,320

Table 5-1: UDOT Access Categories (UDOT 2013)

5.2.4 Variance Criteria

A variance request may be submitted if the proposed development cannot meet UDOT standards for an access. Variance criteria will assist in denying or encouraging the submission of a variance request. Administrative Rule R930-6 outlines several reasons a variance may be declined, including a reasonable alternative access, a divided parcel, and proximity to a signalized intersection. If any are applicable to the site, for example, the applicant may be discouraged from submitting a variance request.

5.2.5 Access Spacing

Access spacing was selected as a decision criterion to assist in determining whether a variance request should be submitted. Access spacing is determined by the AC of the roadway and is shown in Table 5-1. If driveways on the roadway are too close together then the variance request will be required, if the access request is pursued.

5.2.6 Access Spacing Exceptions

There are exceptions to access spacing, including emergency or agricultural access. If any exceptions apply to the site, then a TIS may be waived and/or variance request may be encouraged.

5.2.7 Design Criteria

Four criteria used in roadway design were included for additional information on the state roadway. These include speed limit, annual average daily traffic (AADT), dedicated turn lane, and roadway driveway density.

5.2.7.1 Speed Limit

Speed limit is an important criterion because it may determine what design considerations are needed for mitigation purposes. This includes taper lengths, auxiliary lanes, etc.

5.2.7.2 AADT

The AADT for the roadway is important in finding the impact the generator will have on the adjacent roadway. AADT paired with trip generation can assist in determining whether a TIS will be required.

5.2.7.3 Dedicated Turn Lane

This design criteria will help determine what mitigations may be needed at the site. Depending on the number of left and right-turning vehicles, turn lanes may be required, which may increase the need for a TIS.

5.2.7.4 Roadway Driveway Density

Driveway density is important to gain a rough understanding of how the roadway, regarding AC guidelines, is operating. Can another access be added to the roadway?

5.2.8 Location/Proximity

The site having reasonable alternate access not on a state road may discourage an application all together.

5.2.9 Crash Data

If the site is near an area with a high number of crashes, a TIS will need to be completed. In addition, if access is granted, mitigation may be required.

5.2.10 Mitigation Improvements

From the criteria above, possible mitigation improvements can be listed. If the customer is willing to make some/all of the improvements determined, then a request to waive the TIS could be submitted.

5.2.11 Results

The output of this form provides a summary of the inputs. It also provides a list of what should be brought to the pre-application meeting, what should be included in the access permit application, and possibility whether a TIS may be waived, and what to include in the TIS if not. Additional information that can help the applicant will be presented.

5.3 Flowchart

Using the decision criteria as a starting point, a flowchart was created to outline the Access Permit TIS Form. Figure 5-1 shows how the Access Permit TIS Form will operate and which questions will appear. With input from the TAC, the questions and flow of the tool were finalized. The decision criteria were refined, and ten categories were identified as having an influence on whether a TIS may be waived. These categories and general information regarding questions for the tool will be discussed in this section. Note that several categories have been combined for convenience. Initial information, land use and trip generation, access information, other site data, and mitigation improvements will be discussed.

5.3.1 Initial Information

The first category, Initial Information, has three questions that determine which questions will be asked by the tool. These three questions ask whether the proposed development will have a change in land use; has any change planned for the site, this includes improvements to the building or access, new accesses, changes to parking circulation, etc.; and has the site has been tenantless for more than 12 months. Questions may be skipped if they are not applicable based on the answers to these initial questions.

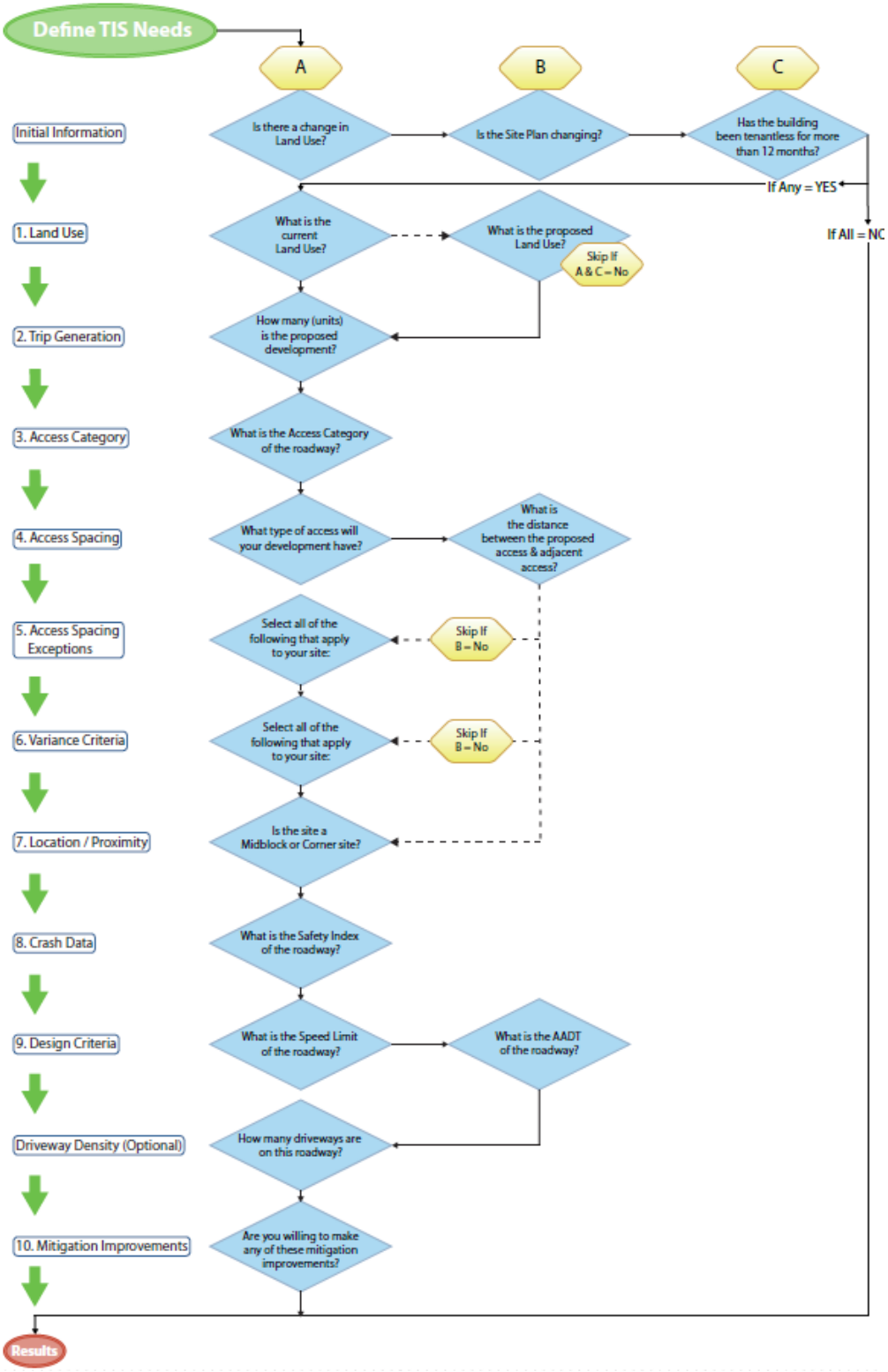


Figure 5-1: Decision tree outlining flow of the tool.

5.3.2 Land Use and Trip Generation

Land use is an important category because it determines the number of trips that will be generated by the site. It was decided that only typical land uses seen in access applications would be available in the tool. Since the tool would be limited by specific land uses, applicants with different land uses would not be able to use the tool. These land uses were decided on with assistance from the TAC and are listed in Table 5-2. Based on experience, engineering judgment, and general trip generation, elements of a TIS will be recommended if Fast Food, Charter School, Gas Station, and Superstore are selected. These land uses often create enough trips that a TIS is always required.

Table 5-2: Land Uses Included in the Tool

Sample Land Uses
Single Family Home
Apartment
Lodging
General Office
Retail
Superstore
Gas Station
Fast Food
Restaurant
Industrial
Charter Schools
Civic
Agricultural

Based on key findings from the research conducted, the TAC determined that 100 PHT should be the trip generation threshold value used to flag a TIS. If a site is calculated to have more than 100 PHT according to the tool, the likelihood a TIS is needed increases. This 100 PHT threshold is recommended as the threshold for a Level I TIS which is an adjustment to the 100 ADT threshold outlined in UDOTs TIS guidelines shown in Section 2.5. Changing this threshold

to meet trends within the industry found in this research will allow more TISs to be waived with little to no impact to the adjacent roadways.

ITE trip generation land uses were used as an initial guide in developing conservative trip generation numbers. However, it was determined that ITE Land uses were too specific for the use within the tool. Trip generation rates were developed and used to calculate rough and conservative trip generation numbers. These numbers are expected to be larger than ITE trip generation rates and equations would calculate to keep a conservative approach in the tool and allow UDOT to exercise their best judgment. The trips calculated by the tool are not designed to be used in a TIS and are to be used only in initial decisions during the access permitting process.

5.3.3 Access Information

Information about proposed and existing accesses are an important part of a TIS analysis. Site trips are distributed to these accesses and put on the roadway system. It was determined that if the roadway is assigned an AC value of 1, 2, 3, 5, or 10, elements of a TIS could not be waived. It was also decided that if the proposed intersection is to be signalized or if the cross-section of the intersecting access is a local roadway, elements of a TIS will be required. In addition, if the required access spacing of the surrounding access is not compliant with the minimum spacing requirements, elements of a TIS may be required. Information regarding the number of total accesses planned for the development, the number of accesses connected to state roadways, and the widths of the accesses connecting to state roads was included.

When no reasonable alternative access is available for the proposed development but UDOT standards are not met, a Variance Request form can be submitted that may grant permission for the developer to depart from the standards and requirements that have been outlined in Administrative Rule R930-6 and other standard documents. If there is a reasonable alternative access for the proposed development due to the location and proximity, the likelihood a TIS is needed increases.

5.3.4 Other Site Data

UDOT has created a crash safety index as a gauge to determine whether a safety problem exists on a stretch of roadway. This index has values from 1 to 10, 10 meaning there is a large crash and safety issue. It was determined that if the crash safety index for the state roadway adjacent to the development is an 8 or higher, then the crash and safety analysis element of a TIS needs to be completed. Speed limit and AADT of the roadway were also data collected in the tool which will give UDOT personnel an idea of how the roadway operates and assists in limited mitigation improvements.

Initially driveway density was thought to be included. This would identify the number of accesses per mile exists on a roadway which would in turn help UDOT understand how the roadway is functioning based on the AC the roadway uses. Since this information is not readily available to the public, it was not included in this tool.

5.3.5 Mitigation Improvements

In the research conducted, several agencies waive TISs if applicants are willing to make improvements to the roadway. The last question in the tool will allow applicants to select possible improvements that may be needed on a roadway that they would be willing to implement. Improvements selected may not be needed and are not, in any form, a commitment to implement these improvements. This question is meant to allow UDOT to understand what improvements the applicant is willing to do if the need arises.

As part of this tool, six possible mitigation improvements that may be needed are estimated. These include right turn and left turn exclusive lanes, deceleration lanes, and acceleration lanes. This information is estimated based on the AC of the roadway and an assumption that 25 percent of the PHTs are right or left turning movements. Using general guidelines from Administrative Rule R930-6, shown in Table 5-3, these mitigations are estimated and shown in the tools output report if exceeded.

Table 5-3: Possible Mitigation Improvements

Access Category		Left Turn Lane (vehicles)	Left Turn Decel Lane (vehicles)	Left Turn Accel Lane (mph)	Right Turn Lane (vehicles)	Right Turn Decel Lane (vehicles)	Right Turn Accel Lane (vehicles)
2	(S-R)		5	>50[c]		10	10
3	(S-U)		5	>45[c]		10	10
4	(R-S)		10	>45[c]		25[b]	50[a, b]
5	(R-PU)		10	>45[c]		25[b]	50[a, b]
6	(R-U)	25	10[a]		50	25[a]	
7	(C-R)	25	10[a]		50	25[a]	
8	(C-U)	25	10[a]		50	25[a]	
9	(O)	25	10[a]		50	25[a]	

a. When the posted speed is > 40 mph

b. Generally not required on roadways with more than 3 travel lanes in the direction of the right turn.

c. A left turn acceleration lane may be required if it will be a benefit to the safety and operation of the roadway.

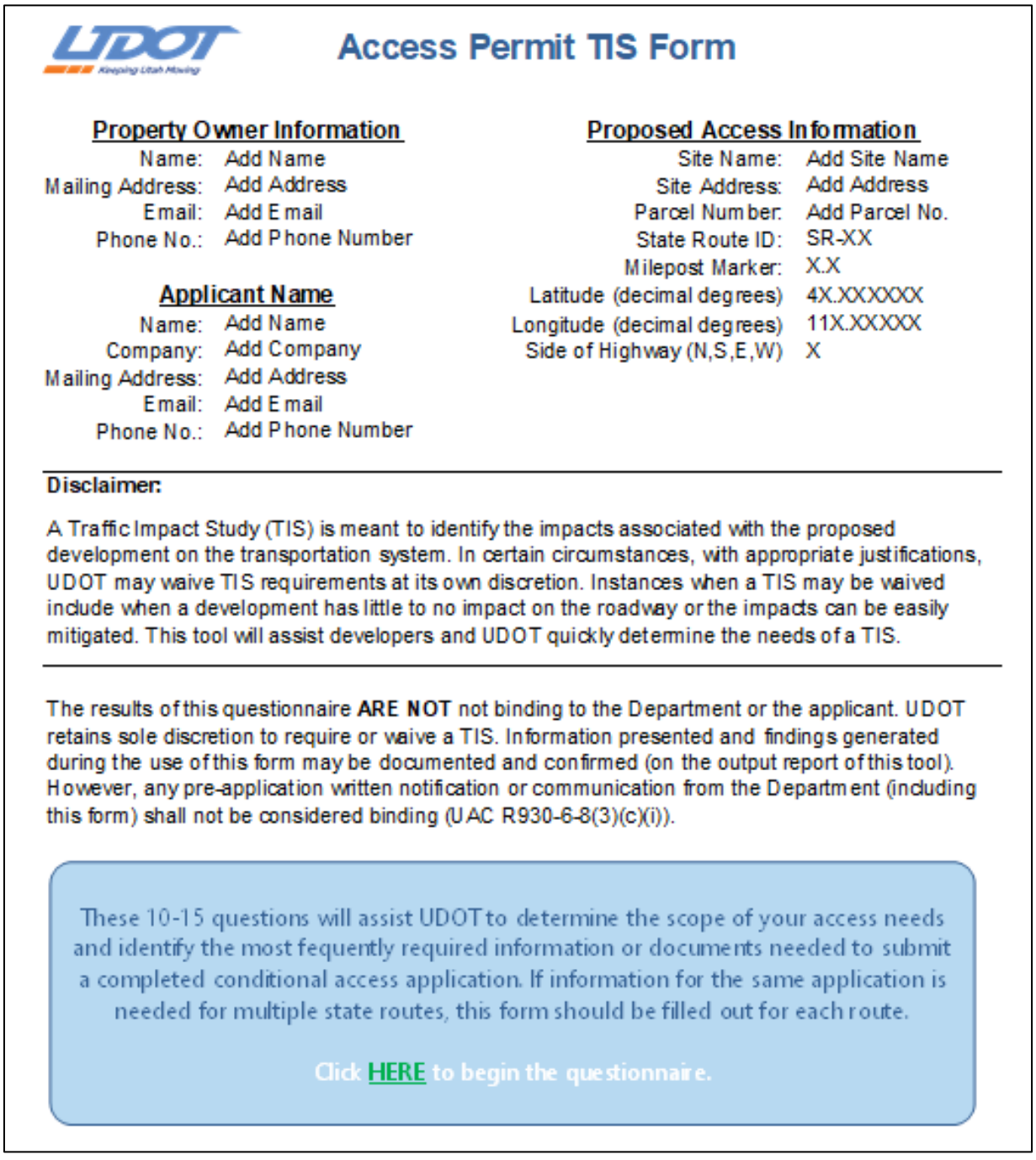
5.4 Access Permit TIS Form

The Access Permit TIS Form was created in Microsoft Excel and coded in Visual Basic Applications (VBA). This program was chosen due to its wide use and availability. User forms were created which allows a clean graphical user interface (GUI) that applicants and UDOT personnel can navigate through easily. Multiple pages of questions have been created based on the flowchart to keep like questions together. The Access Permit TIS Form interface is designed with help features for an applicant to complete on their own. These help features include definitions, steps, and links to UPLAN, UDOTs online database which allows applicants to find information such as AC of the roadway, Speed Limit, and AADT. This form should be filled out for multiple state routes if information is needed on multiple routes for the same application. The home page, questionnaire, and results page will be discussed in this section.

5.4.1 Home Page

Upon opening the spreadsheet, the Home Page is displayed. This page, shown in Figure 5-2, allows the applicant to enter basic information about the property owner, applicant, and proposed development. Also included is a brief disclaimer stating that UDOT retains sole discretion to waive a TIS regardless of the recommendations outlined by this tool. In addition,

the answers received from the applicant through this tool are not binding. A link is provided that allows the applicant to begin the questionnaire.



UDOT

Access Permit TIS Form

Property Owner Information

Name: Add Name
Mailing Address: Add Address
Email: Add E mail
Phone No.: Add Phone Number

Applicant Name

Name: Add Name
Company: Add Company
Mailing Address: Add Address
Email: Add E mail
Phone No.: Add Phone Number

Proposed Access Information

Site Name: Add Site Name
Site Address: Add Address
Parcel Number: Add Parcel No.
State Route ID: SR-XX
Milepost Marker: X.X
Latitude (decimal degrees) 4X.XXXXXX
Longitude (decimal degrees) 11X.XXXXX
Side of Highway (N,S,E,W) X

Disclaimer:

A Traffic Impact Study (TIS) is meant to identify the impacts associated with the proposed development on the transportation system. In certain circumstances, with appropriate justifications, UDOT may waive TIS requirements at its own discretion. Instances when a TIS may be waived include when a development has little to no impact on the roadway or the impacts can be easily mitigated. This tool will assist developers and UDOT quickly determine the needs of a TIS.

The results of this questionnaire **ARE NOT** not binding to the Department or the applicant. UDOT retains sole discretion to require or waive a TIS. Information presented and findings generated during the use of this form may be documented and confirmed (on the output report of this tool). However, any pre-application written notification or communication from the Department (including this form) shall not be considered binding (UAC R930-6-8(3)(c)(i)).

These 10-15 questions will assist UDOT to determine the scope of your access needs and identify the most fequently required information or documents needed to submit a completed conditional access application. If information for the same application is needed for multiple state routes, this form should be filled out for each route.

Click HERE to begin the questionnaire.

Figure 5-2: TIS streamlining tool home page.

5.4.2 Questionnaire

There are six possible pages to the questionnaire: primary data, site data, access data, considerations, additional data, and mitigations. It is possible that certain pages may not appear based on answers chosen to previous questions. Each page will be expounded upon in this section.

5.4.2.1 Primary Data Page

Upon beginning the questionnaire, the primary data page is displayed. The three initial questions outlined in the flowchart are shown in Figure 5-3. An access application is required whenever a new driveway, other curb cut, or local street connection is sought on a state highway, or when an applicant is altering the land use or intensity of an existing access. The three site-specific conditions requiring an access application are sited in section R930-6 of the Utah Administrative Code. These conditions include: (1) anticipated changes in the land use, (2) anticipated changes to the site plan, and (3) the occupancy status of the property over the last 12 months (UDOT 2013). For properties that may be underdeveloped, where the occupancy status is not applicable, "no" should be selected for condition three.

Also included on this sheet are helps or tips which appear when selected to assist the applicant in completing the form. Additionally, selecting "yes" to a change in land use, site plan, or the occupancy over the last 12 months will require answers to additional questions pertaining to each of these conditions.

If all three questions are answered "no", the questionnaire ends. This is due to the assumption that nothing on the site is changing based on the responses, therefore a TIS should not be needed. When the questionnaire closes, a message box appears advising the applicant to contact the UDOT region in the area. This message box is shown in Figure 5-4.

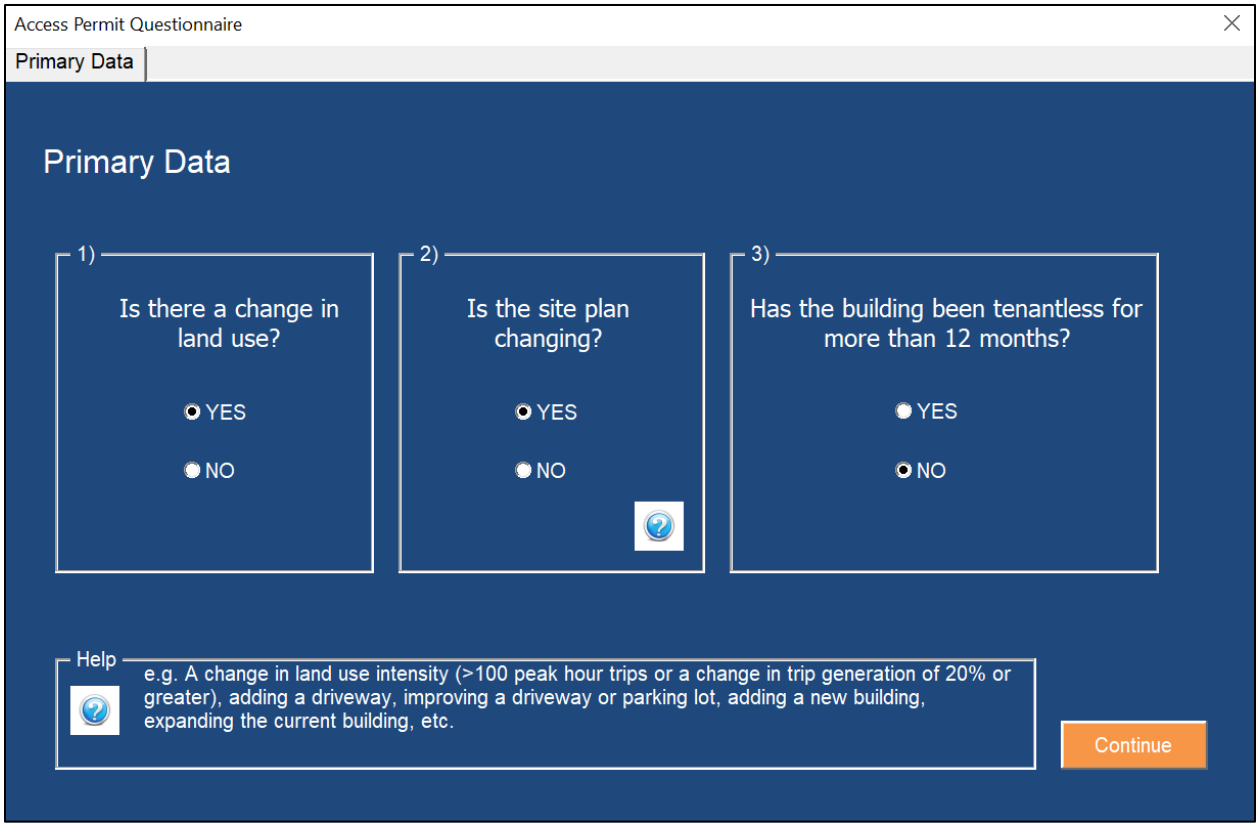


Figure 5-3: Primary Data page.

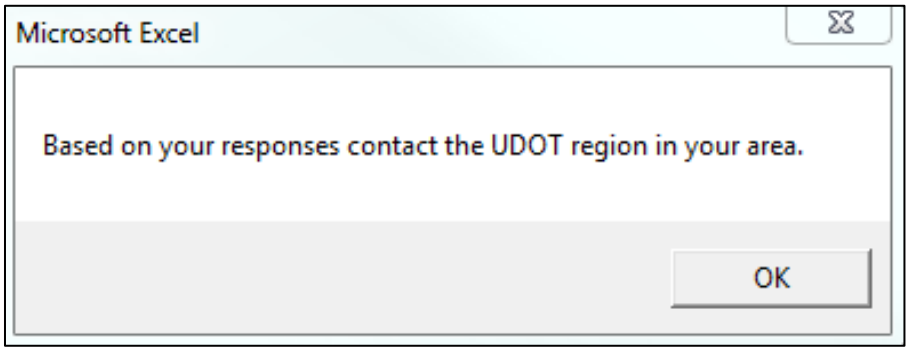


Figure 5-4 Primary Data message box.

5.4.2.2 Site Data Page

The Site Data page, shown in Figure 5-5, required project-specific information regarding land use, site data, and roadway AC. The inputs for this page will approximate the land use intensity and other constraints pertaining to the AC of the roadway. Multiple land uses may be selected if applicable to the development. If multiple land uses are selected, separate PHTs will be calculated for each land use selected.

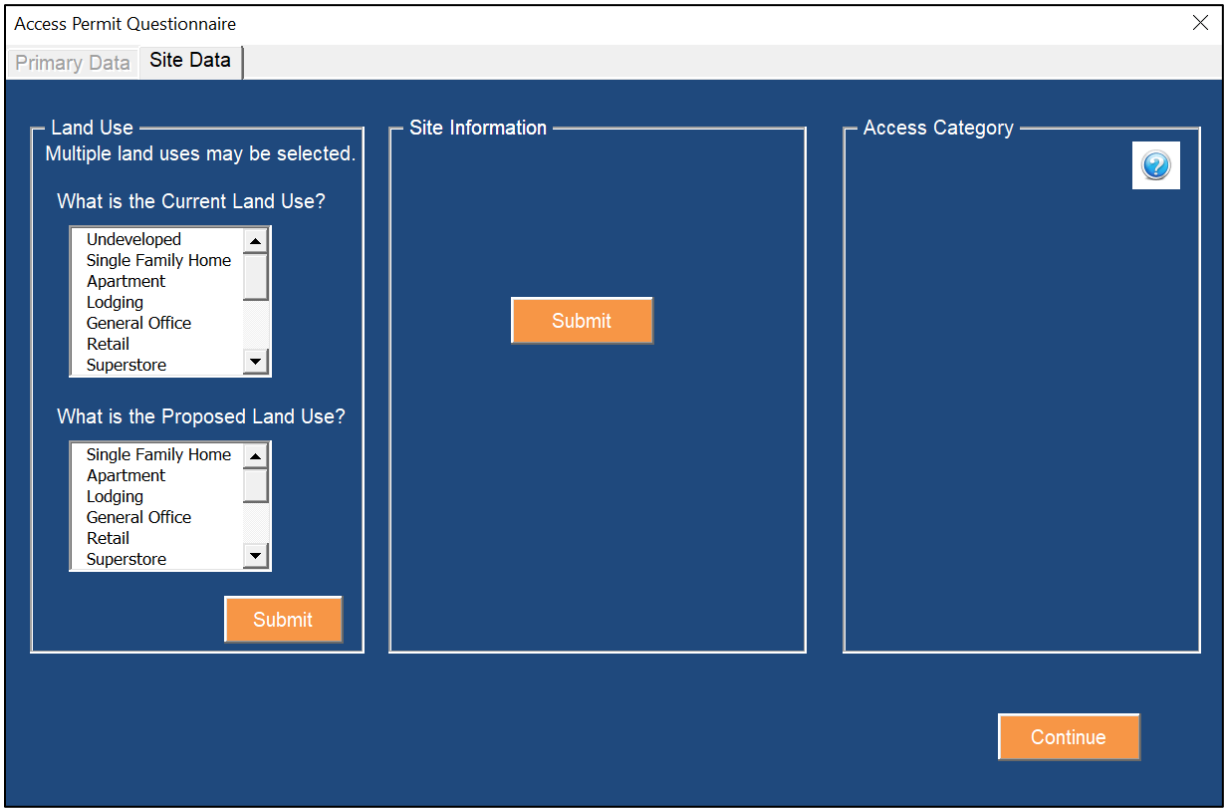


Figure 5-5: Site Data page.

The functionality of this page is slightly different than the rest. The land use question appears and once answered, the submit button should be pressed. This allows the site information question to appear. After the intensity of a land use is entered the submit button under the site information question should be pressed which allows the user to enter the intensity of the next land use selected. As land use intensity values are entered, they will appear below the land use

intensity question. This is shown in Figure 5-6. Note that only the first four land uses that are selected will appear. If more are selected, they will not appear on this page but will print to the output report.

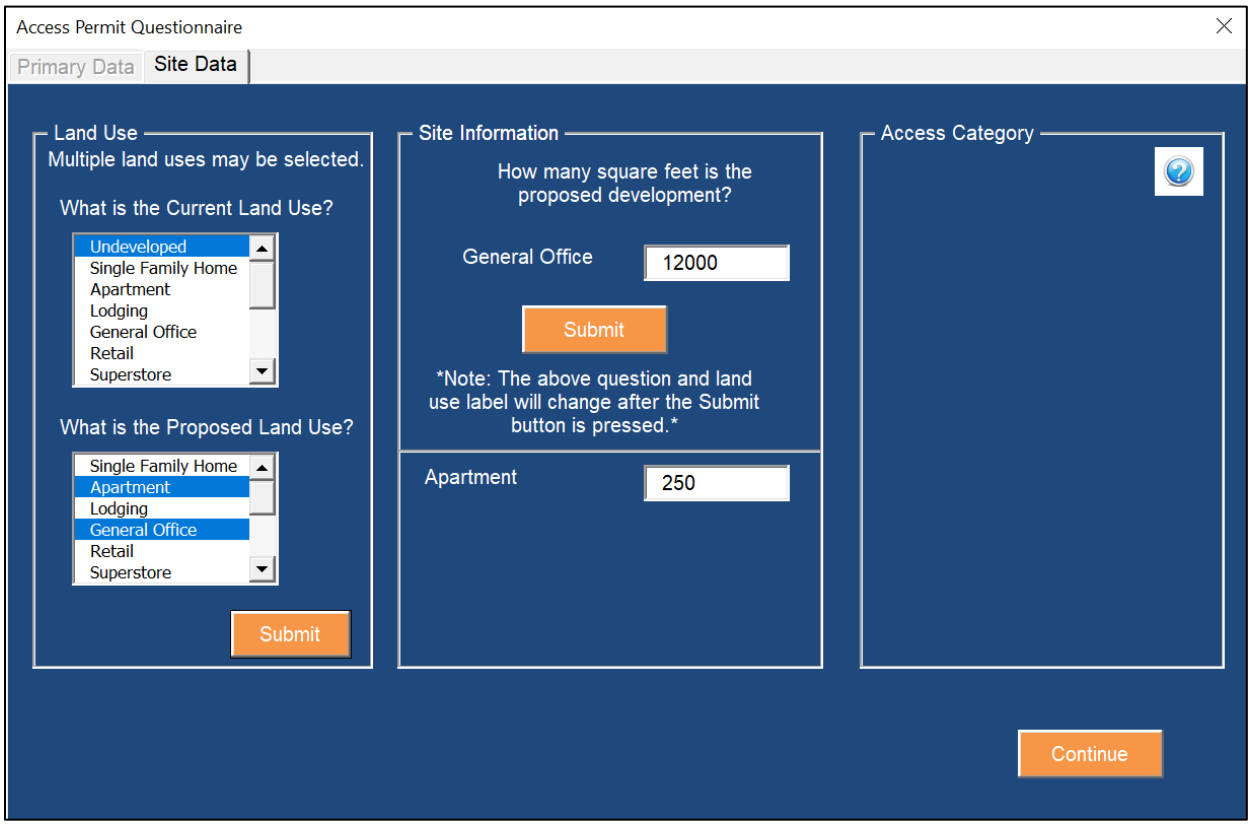


Figure 5-6: Site Information question on Site Data page.

After the intensity for all selected land uses are input, the AC question appears, see Figure 5-7. An active hyperlink to UPLAN is included to determine the roadway AC. The "Help" section provides additional directions to find the AC on UPLAN. This information will be used to approximate the number of trips anticipated during the peak hour. Depending on the intensity, possible mitigation measures estimated by this form, such as right or left turn lanes, will be identified. Table 5-4 shows the threshold values outlined in Administrative Rule R930-6 that are estimated in this form (UDOT 2013). The number of vehicles making left or right turns was approximated under the assumption that 25% of peak hour trips are left- or right-turning

movements. This information is calculated in the form and will also be used to determine if an access is allowed based on the AC.

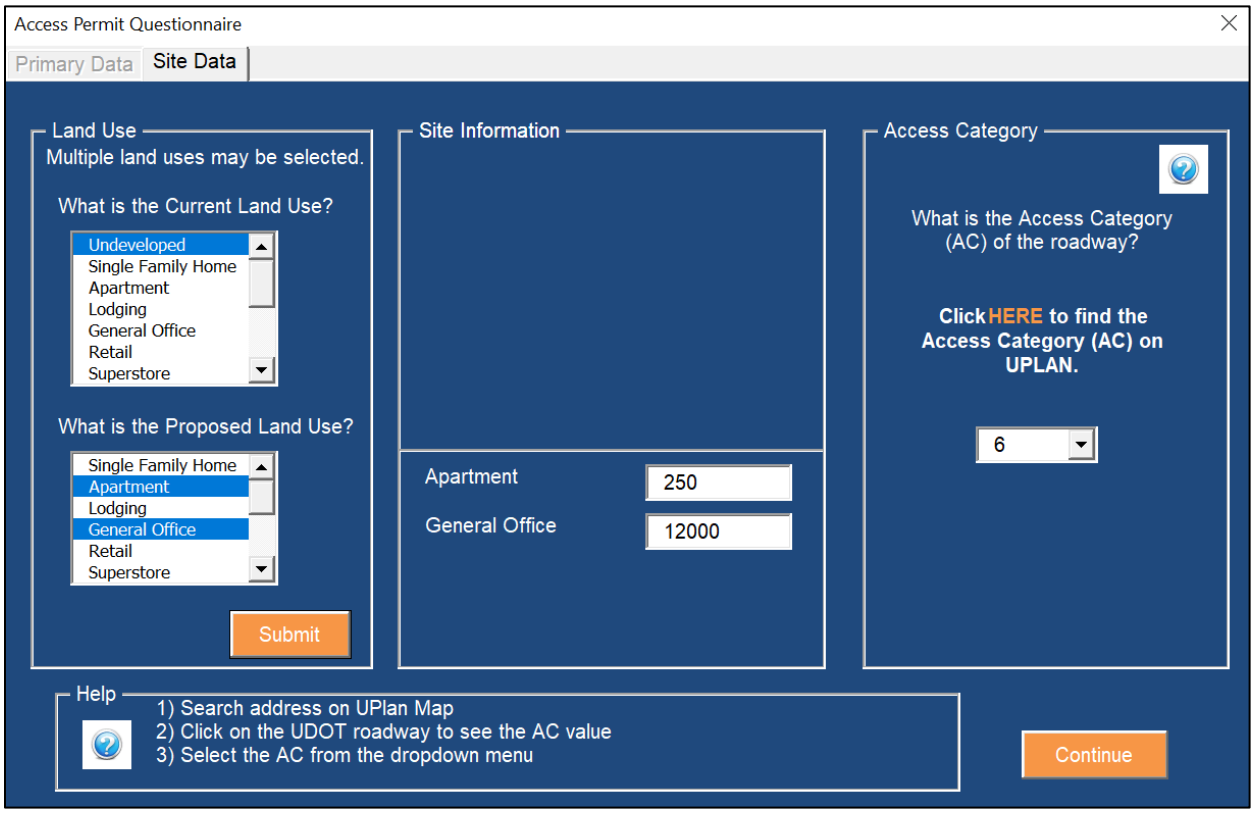


Figure 5-7: Access Category questions, Site Data page.

Table 5-4: Possible Mitigation Measures (UDOT 2013)

Access Category		Left Turn Lane (vehicles)	Left Turn Decel Lane (vehicles)	Left Turn Accel Lane (mph)	Right Turn Lane (vehicles)	Right Turn Decel Lane (vehicles)	Right Turn Accel Lane (vehicles)
2	(S-R)		5	>50[c]		10	10
3	(S-U)		5	>45[c]		10	10
4	(R-S)		10	>45[c]		25[b]	50[a, b]
5	(R-PU)		10	>45[c]		25[b]	50[a, b]
6	(R-U)	25	10[a]		50	25[a]	
7	(C-R)	25	10[a]		50	25[a]	
8	(C-U)	25	10[a]		50	25[a]	
9	(O)	25	10[a]		50	25[a]	

a. When the posted speed is > 40mph

b. Generally not required on roadways with more than 3 travel lanes in the direction of the right turn.

c. A left turn acceleration lane may be required if it will be a benefit to the safety and operation of the roadway.

5.4.2.3 Access Data Page

Access Data is the next page in the questionnaire. This page, shown in Figure 5-8, requires information relating to the geometrical constraints of a proposed access location including, the total number of accesses to the development, the number of accesses planned along the state route, access type, access width, and access spacing. Access type, access width, and access spacing questions are only for proposed accesses planned on the state route.

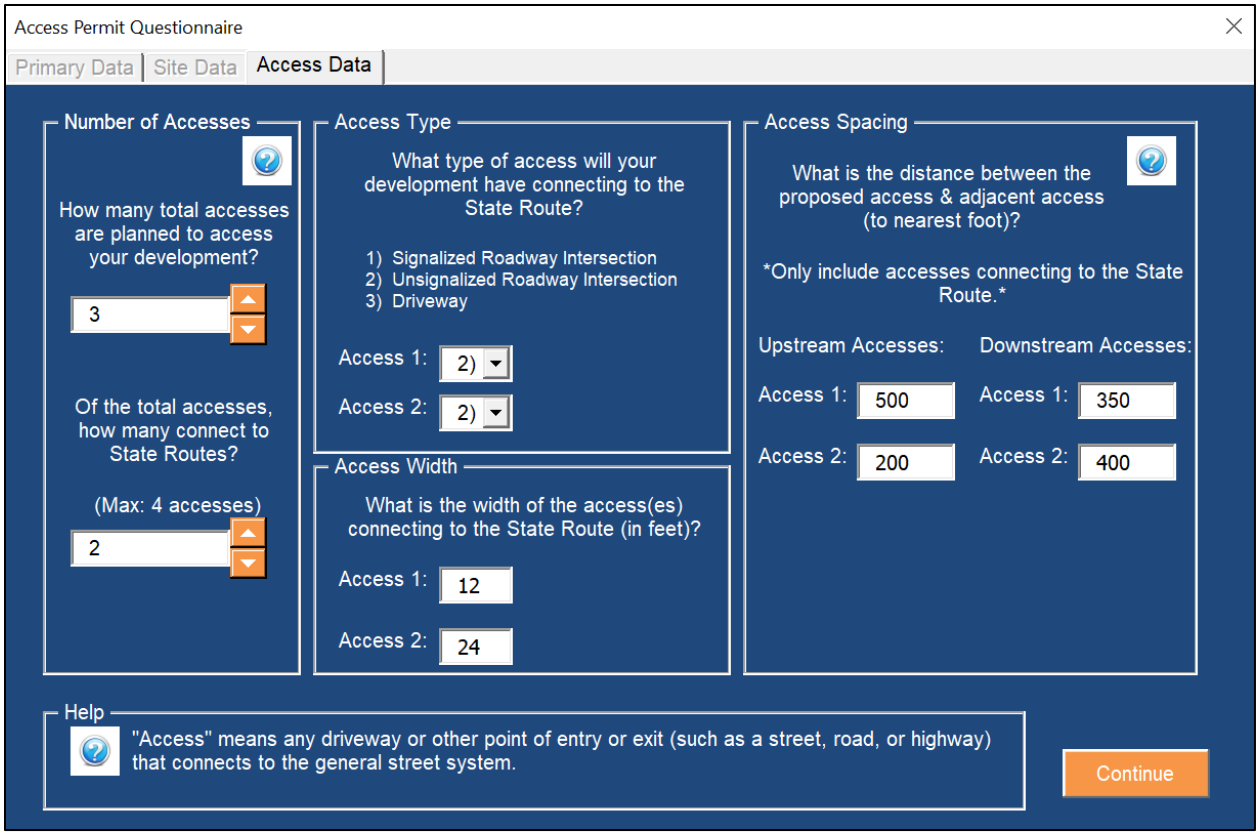


Figure 5-8: Access Data page.

The help tab on this page under Access Spacing opens a new user form with step-by-step instructions and a drawing, shown in Figure 5-9, that describes how to measure the distances between the proposed access(es) and adjacent access(es). Distances to the nearest upstream and downstream access(es) should be measured. According to UDOT practice, the nearest access may be across the street from the proposed access if left turn access is allowed. The form checks whether access spacing requirements are compliant with roadway ACs from Administrative Rule R930-6, which are outlined in Section 5.2.3.

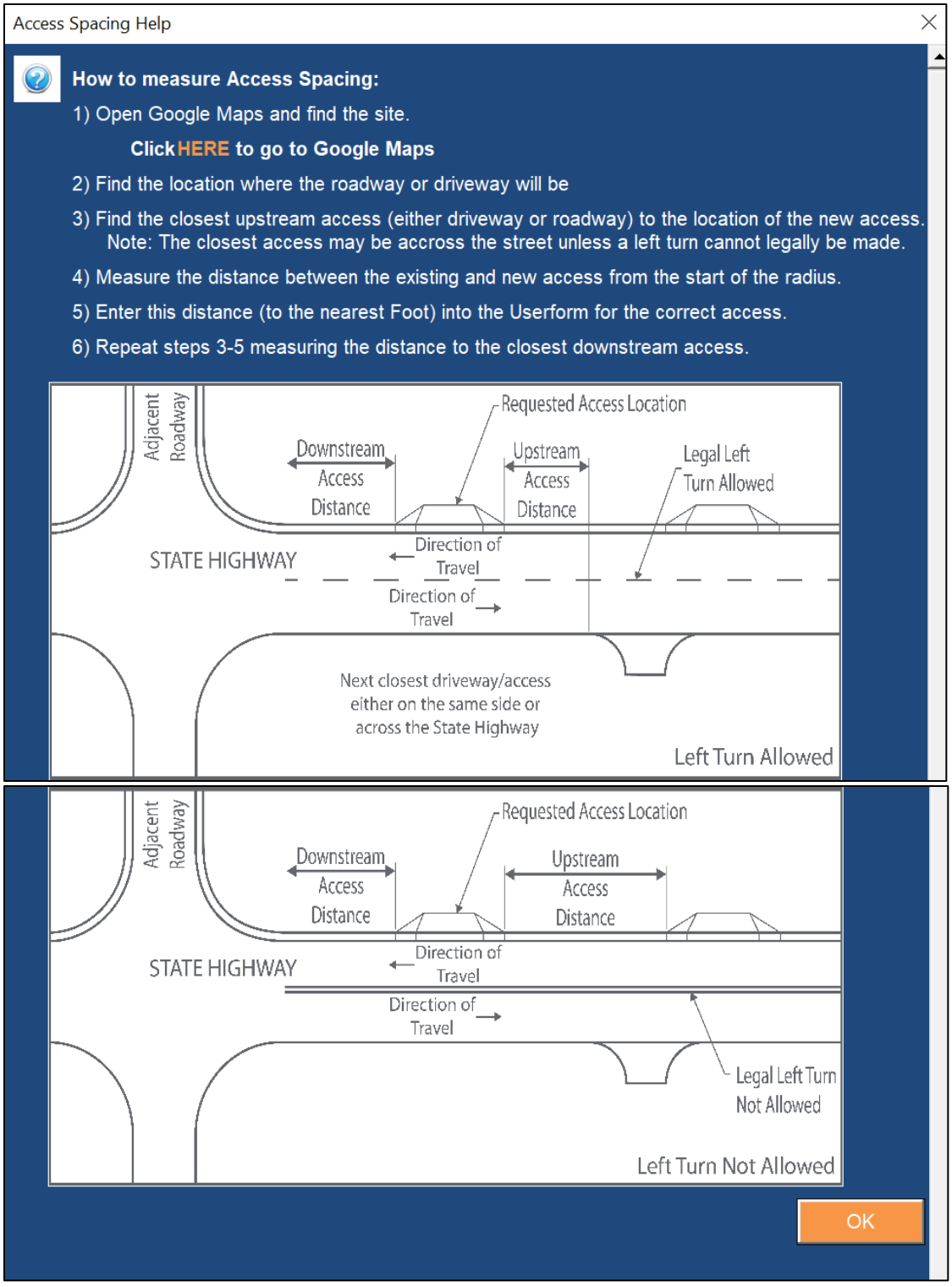


Figure 5-9: Access Spacing help page.

5.4.2.4 Considerations Page

The Considerations page, shown in Figure 5-10, provides a list of potential access characteristics found in Administrative Rule R930-6 that may provide alternatives that reduce impacts to the State Highway system and could require additional considerations. The "Help" section for this page opens a link to Administrative Rule R930-6 which houses descriptions for each of these items. Some items are described in the "Definition" section of the Rule while others are explained in the Rule text beginning on page 18. However, brief descriptions from the Rule can be found in Table 5-5. If the applicant is unsure whether a consideration applies or if it is irrelevant to the site, the applicant should leave the box unchecked. Note that checked boxes may affect the ability to get a variance.

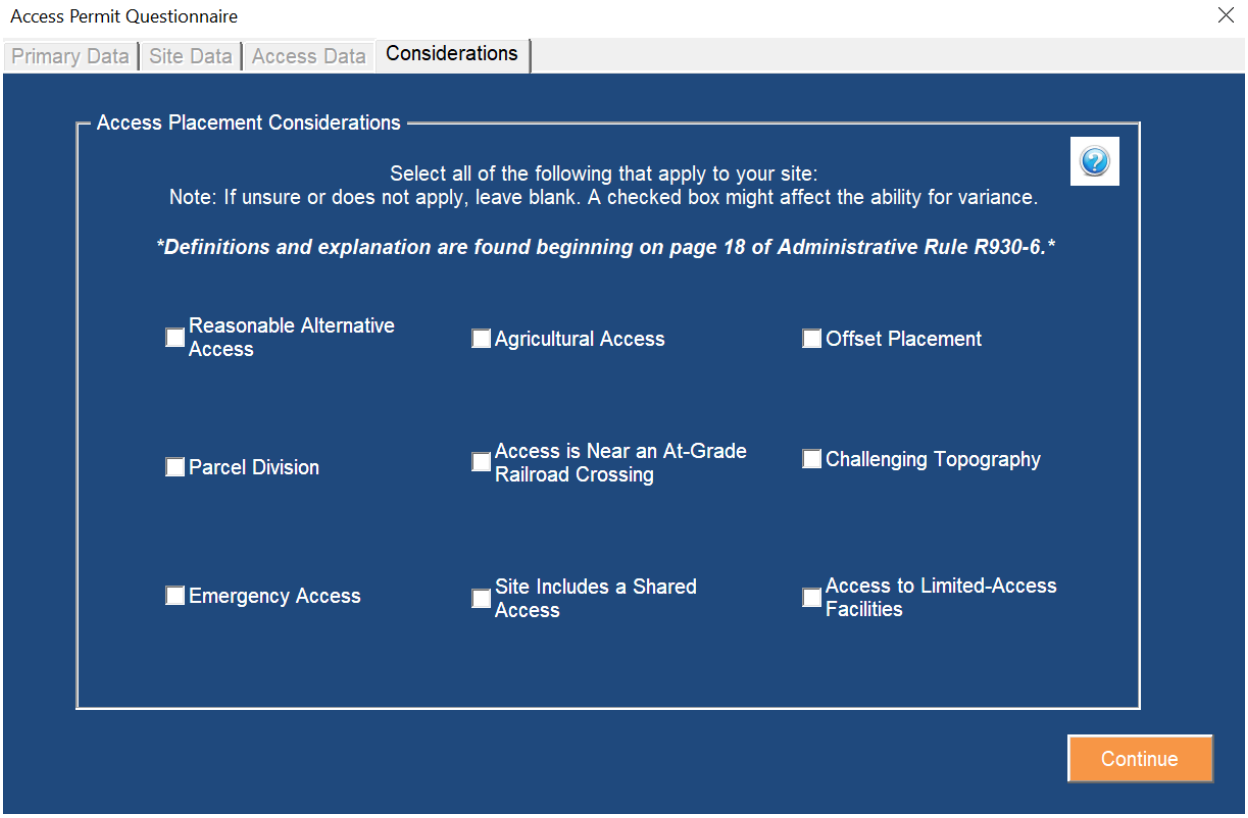


Figure 5-10: Considerations page.

Table 5-5: Access Consideration Definitions- R930-6 beginning on page 18 (UDOT 2013)

Access Consideration Definitions	
Reasonable Alternative Access	When an application is created for access to a state highway with assigned access category 4 through 9, the access may be granted if reasonable alternate access cannot be obtained from the local street or road system. If the proposed access does not meet design or spacing standards, the access shall be denied if the proposed access on the property has reasonable alternate access available to the general street system. (i) Reasonable alternate access from a city or county road shall be determined in consultation with the appropriate local authority and the applicant. A determination of reasonable access from a local street or road shall include consideration of the local street or road function, purpose, capacity, operational and safety conditions and opportunities to improve the local street or road. (ii) Where a subject property adjoins or has access to a lesser function road or an internal street system or by way of dedicated rights-of-way or easements, such access will be considered a reasonable alternate access and any access to the state highway will be considered an additional access. (iii) Direct access to the state highway may be approved if the alternative local access will create, in the determination of the Department, a significant operational or safety problem at the alternative location and the direct access to the state highway will not be a safety or operational problem to the highway.
Parcel Division	No additional access rights may accrue upon the splitting or dividing of existing parcels of land or contiguous parcels under or previously under the same ownership or controlling interest.
Emergency Access	May be granted on state highways with access category 2 through 10 designations and where required by local safety regulations. Such direct emergency access may be permitted only if it is not feasible to provide the emergency access to a secondary roadway. Requests for such access must include a written explanation with references to local standards from the local authority safety official. Emergency access may not be granted to accommodate general vehicular entering or exiting traffic. The access shall be gated and locked.
Agricultural Access	May be granted to state highways with access category 2 through 9 designations and where the property has no other reasonable alternate access. Additional agricultural access to property under the same ownership or controlling interest may be granted due to topography or ongoing agricultural activities. Agricultural accesses must be kept to the minimum necessary to provide access service. Agricultural access must meet minimum access design and safety standards of this rule. A change in use of the parcel of land serviced by the agricultural access may require the access to be closed. The spacing criteria between accesses contained in this rule may be waived for agricultural access. All such agricultural accesses must meet the sight distance criteria of this rule.
Shared Access	Shared access of two or more parcels may be required where a proposed new access or the redesign of an existing access does not meet spacing standards and criteria for the appropriate access category. The access location shall serve as many properties and interests as possible to reduce the need for additional direct access to the state highway.
Access Near an At-Grade Railroad	Access near an at-grade railroad must not be located closer than 250 feet from the crossing. Circumstances may exist where greater spacing is required consistent with the appropriate access category spacing.
Offset	Every effort must be made to align opposing driveways and streets not separated by a non-traversable median.
Challenging Topography	Where existing topography or other existing conditions make the required access spacing intervals not feasible, the Department may consider topography, established property ownerships, unique physical limitations, unavoidable or pre-existing historical land use patterns, and physical design constraints with a reasonable attempt to achieve the required access spacing.
Access to Limited-Access	Under limited-access control, the following additional limitations shall apply. Where there are conflicts between the following limitations and other requirements of this rule, the more stringent requirement shall be met.

	i) The maximum feasible and economic access control must always be obtained. ii) On bypasses of cities and towns, all property access shall be prohibited except where the bypass is in a low population town with little or no business and where inadequate public crossroads for property access exists. iii) Other than on bypass roads, a maximum of five accesses per mile on each side of the highway may be granted. Accesses to property shall only be granted opposite to each other. iv) Where any property has access to another public road or roads, no access shall be given closer than ½ mile from the public road nor shall any two granted accesses be closer than ½ mile. However, where the proposed project involves reconstruction on or near an existing highway where a home, business or other property development is located and lack of direct access to a home, business or other property development would involve excessive property damage and added construction costs, access openings may be provided within the other stated limitations.

5.4.2.5 Additional Data Page

The Additional Data page requires inputs relating to the access location, crash safety index near the proposed access, and criteria needed to design the access. This page is shown in Figure 5-11. These inputs will also assist in estimating potential mitigation improvements outlined in Table 5-3. Active hyperlinks to UPLAN are included to collect information required on this page. Multiple "Help" sections provide additional direction to navigate to the pertinent information on UPLAN.

5.4.2.6 Mitigation Page

The Mitigation page, shown in Figure 5-12, provides mitigation strategies an applicant may elect to include or may already be including as part of their project that could reduce impacts to the state roadway. This section establishes expectations of what may be required for a safe access onto the State Highway system and allows UDOT personnel to understand what mitigation improvements the applicant is willing to make if needed or will be making as part of their project. The implementation of these measures may address traffic needs of the project and the inclusion of these mitigations may expedite the permitting process.

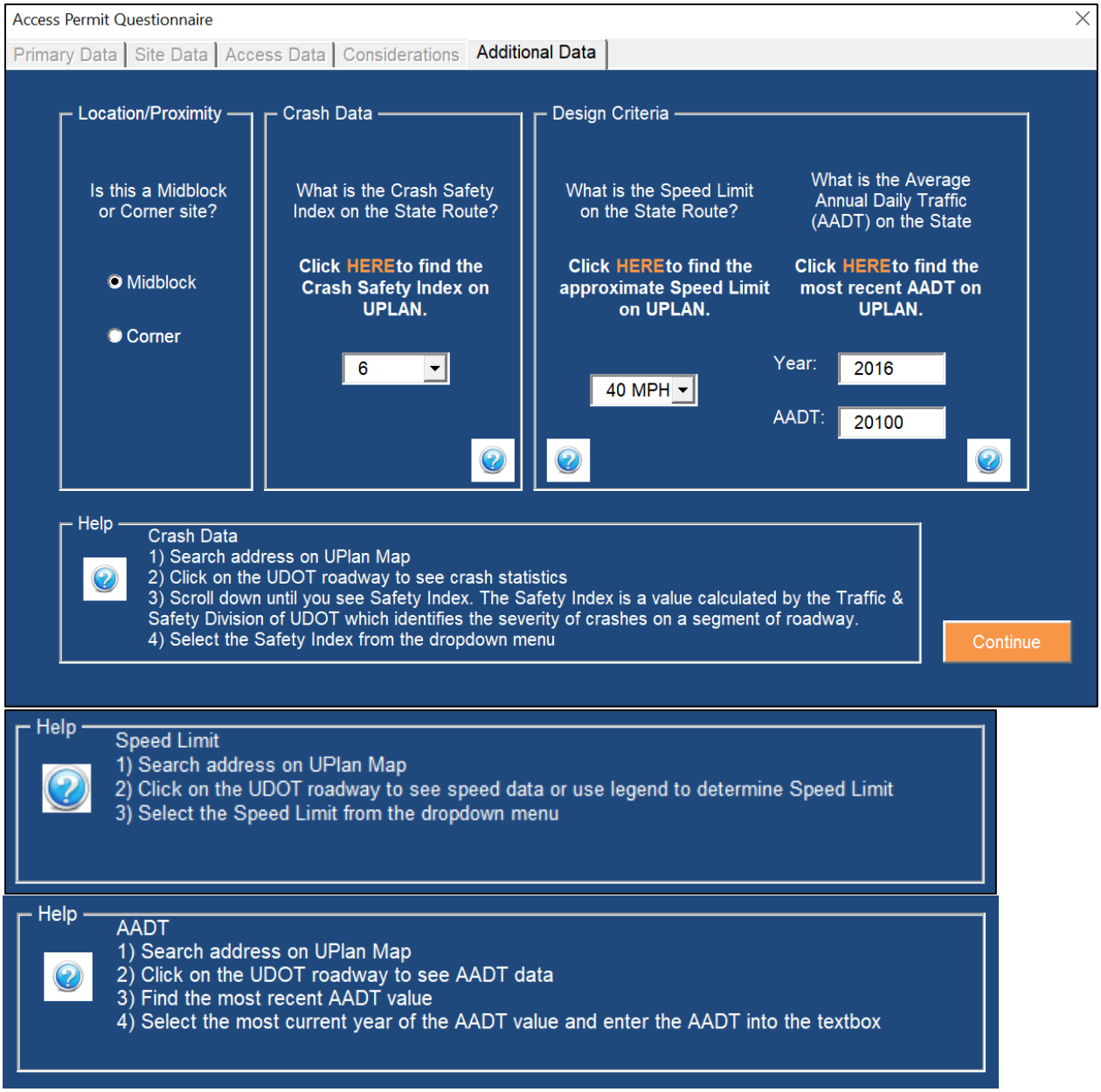


Figure 5-11: Additional Data page.

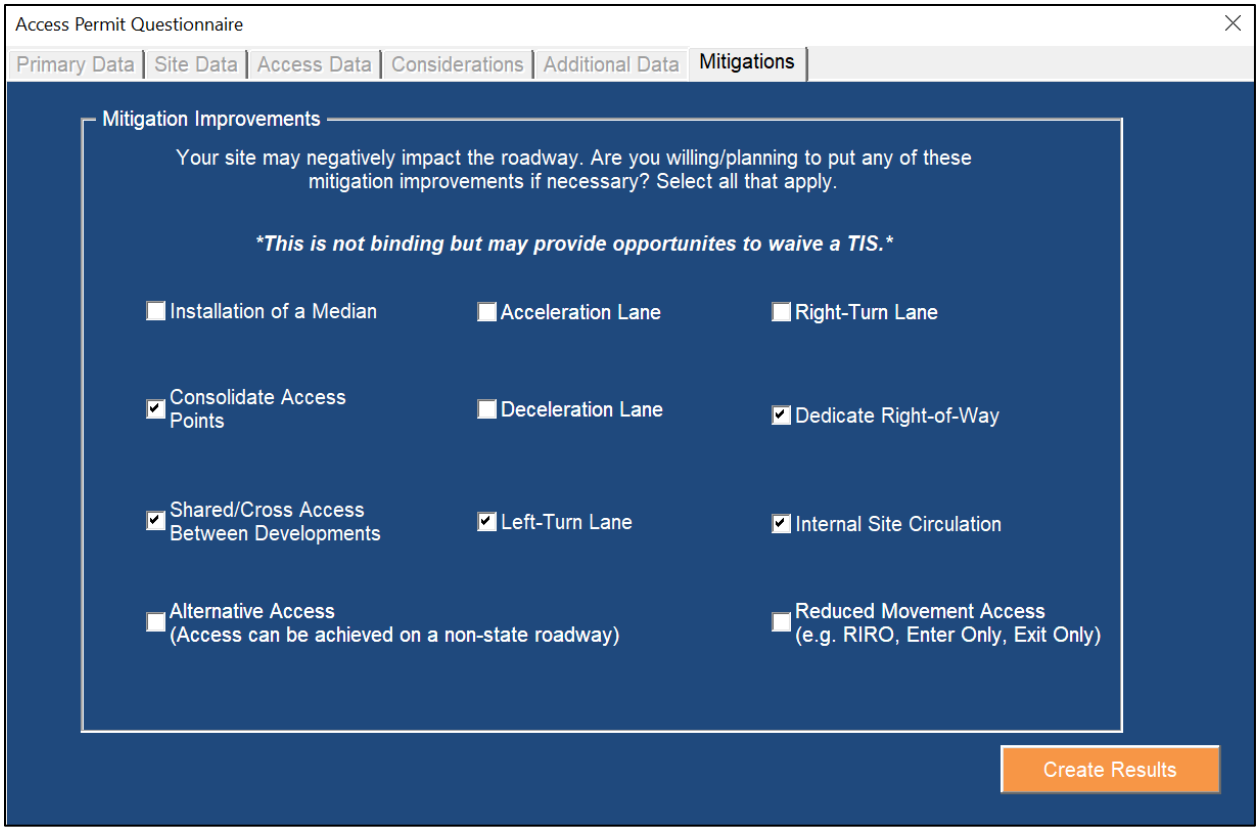


Figure 5-12: Mitigations page.

5.4.3 Results Page

After the last page, Mitigations, is completed, the applicant will select the Create Results button. This will close the questionnaire and a message box will appear. This message box, shown in Figure 5-13, outlines the next steps that the applicant should take. This includes scheduling a Pre-application meeting with the UDOT region, saving the Excel spreadsheet and emailing it to the UDOT region permit office. If an error occurs when the results sheet is being created, an error message box will appear, shown in Figure 5-14, stating that the results sheet cannot be completely created with all the information from the questionnaire. The error number and description are also shown in this message box. After the message boxes are closed, an output report will be created. After the error message box is closed, the output report will be created as much as possible despite the errors that occurred.

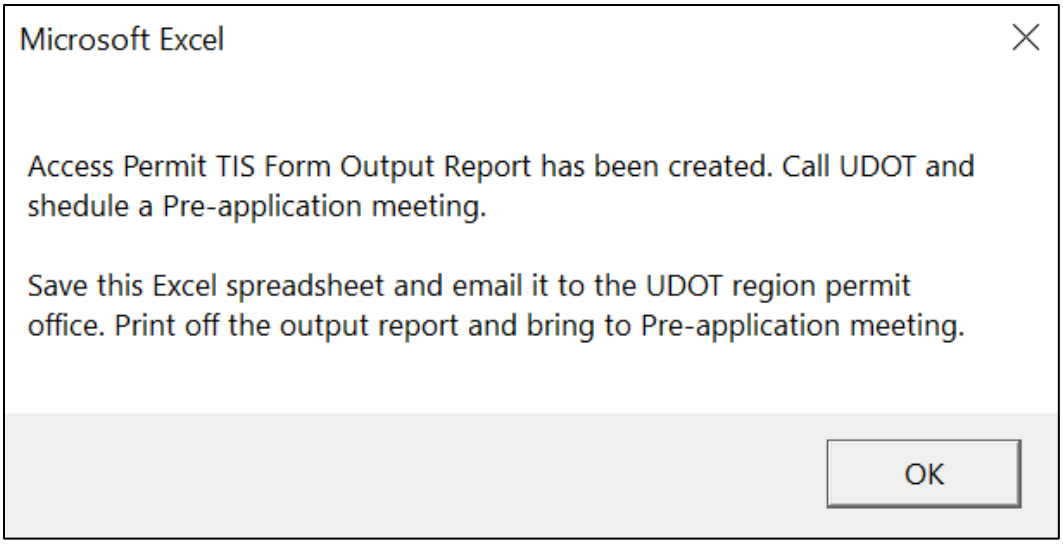


Figure 5-13: Message box.

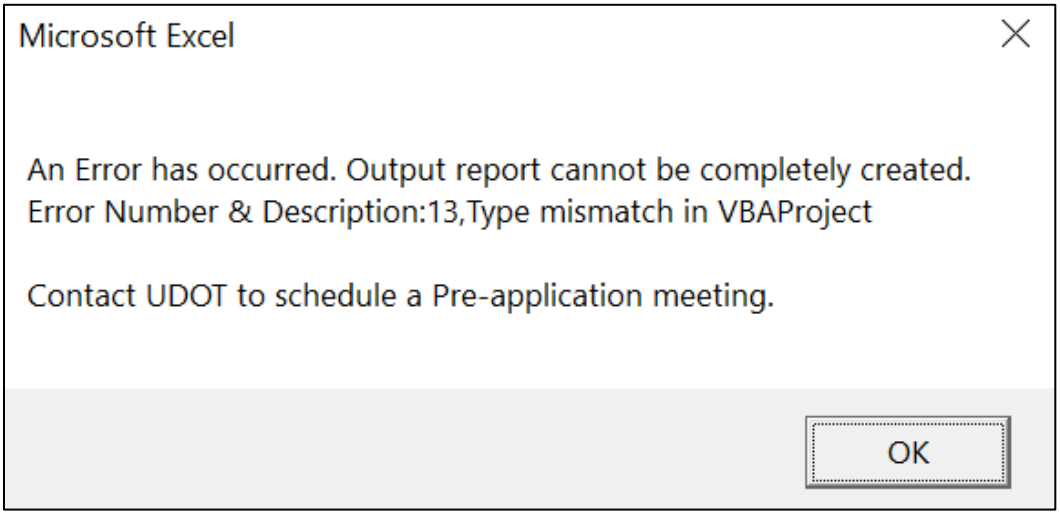
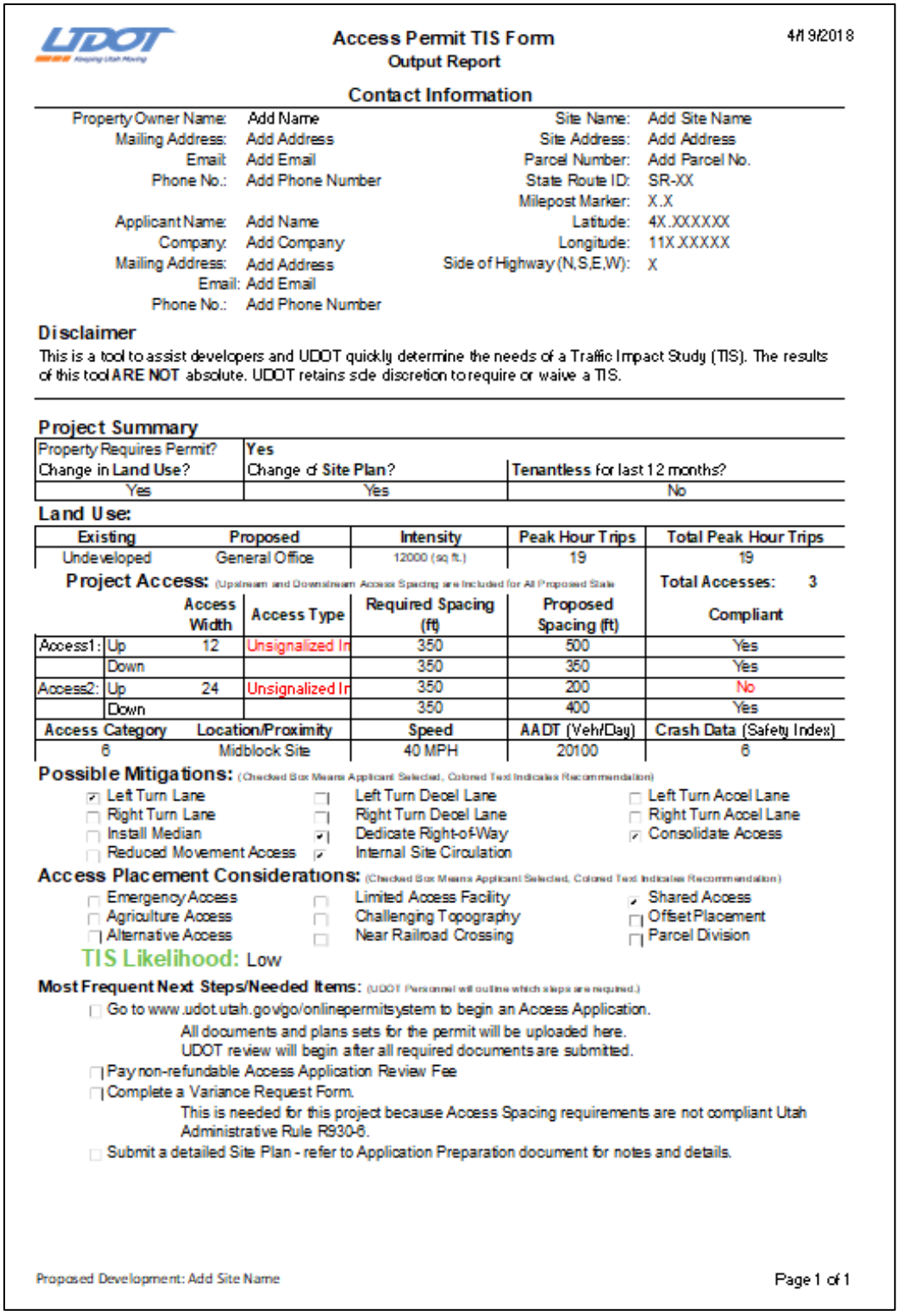


Figure 5-14: Error message box.

The information from the questionnaire is summarized into a single page form to be reviewed at the pre-application meeting. This summary will provide UDOT with more complete information prior to the pre-application meeting and establishes an expectation for what may be

required for an access to be approved on the State Highway system. Figure 5-15 displays a sample of the output report. This report should be brought to the pre-application meeting if the questionnaire is completed beforehand. The bottom half of the results sheet lists the most frequent next steps and needed items in the application process. UDOT personnel will assist the applicant in understanding which of these steps are required to complete the application.

As shown in the sample results sheet, the information colored in red exceed the threshold values that were discussed in Section 5.2 and 5.3. To determine the likelihood a TIS is needed, a weighted scoring system was created. This scoring system is shown in Table 5-6. For each threshold value that is exceeded, pre-determined points are added to a TIS likelihood variable. Table 5-7 shows the score thresholds that approximate the likelihood of a TIS. If the likelihood variable is less than 5 the TIS likelihood is Low, greater or equal to 10 and the TIS likelihood is High. Everything in between is categorized as Uncertain.



Access Permit TIS Form
Output Report

4/19/2018

Contact Information

Property Owner Name:	Add Name	Site Name:	Add Site Name
Mailing Address:	Add Address	Site Address:	Add Address
Email:	Add Email	Parcel Number:	Add Parcel No.
Phone No.:	Add Phone Number	State Route ID:	SR-XX
		Milepost Marker:	X.X
Applicant Name:	Add Name	Latitude:	4X.XXXXXX
Company:	Add Company	Longitude:	11X.XXXXX
Mailing Address:	Add Address	Side of Highway (N,S,E,W):	X
Email:	Add Email		
Phone No.:	Add Phone Number		

Disclaimer

This is a tool to assist developers and UDOT quickly determine the needs of a Traffic Impact Study (TIS). The results of this tool ARE NOT absolute. UDOT retains sole discretion to require or waive a TIS.

Project Summary

Property Requires Permit?	Yes	
Change in Land Use?	Change of Site Plan?	Tenantless for last 12 months?
Yes	Yes	No

Land Use:

Existing	Proposed	Intensity	Peak Hour Trips	Total Peak Hour Trips
Undeveloped	General Office	12000 (sq ft.)	19	19

Project Access: (Upstream and Downstream Access Spacing are Included for All Proposed Sites)

Total Accesses: 3

		Access Width	Access Type	Required Spacing (ft)	Proposed Spacing (ft)	Compliant
Access1:	Up	12	Unsignalized In	350	500	Yes
	Down			350	350	Yes
Access2:	Up	24	Unsignalized In	350	200	No
	Down			350	400	Yes

Access Category	Location/Proximity	Speed	AADT (Veh/Day)	Crash Data (Safety Index)
6	Midblock Site	40 MPH	20100	6

Possible Mitigations: (Checked Box Means Applicant Selected, Colored Text Indicates Recommendation)

- [x] Left Turn Lane
- [ ] Right Turn Lane
- [ ] Install Median
- [ ] Reduced Movement Access
- [ ] Left Turn Decel Lane
- [ ] Right Turn Decel Lane
- [x] Dedicate Right-of-Way
- [x] Internal Site Circulation
- [ ] Left Turn Accel Lane
- [ ] Right Turn Accel Lane
- [x] Consolidate Access

Access Placement Considerations: (Checked Box Means Applicant Selected, Colored Text Indicates Recommendation)

- [ ] Emergency Access
- [ ] Agriculture Access
- [ ] Alternative Access
- [ ] Limited Access Facility
- [ ] Challenging Topography
- [ ] Near Railroad Crossing
- [x] Shared Access
- [ ] Offset Placement
- [ ] Parcel Division

TIS Likelihood: Low

Most Frequent Next Steps/Needed Items: (UDOT Personnel will outline which steps are required.)

- [ ] Go to www.udot.utah.gov/go/onlinepermitsystem to begin an Access Application.
  All documents and plans sets for the permit will be uploaded here.
  UDOT review will begin after all required documents are submitted.
- [ ] Pay non-refundable Access Application Review Fee
- [ ] Complete a Variance Request Form.
  This is needed for this project because Access Spacing requirements are not compliant Utah Administrative Rule R930-6.
- [ ] Submit a detailed Site Plan - refer to Application Preparation document for notes and details.

Proposed Development: Add Site Name

Page 1 of 1

Figure 5-15: Sample output results sheet.

Table 5-6: TIS Likelihood Weighted Scoring System

Category	Selection	Points
Land Use	If any are selected: • Fast Food • Charter School • Superstore • Gasoline Station	+10
Peak Hour Trips (PHT)	• >100 PHT • >500 PHT	+1 +5
Total Peak Hour Trips (PHT)	• >100 PHT • >500 PHT	+1 +5
Access Category (AC)	If one of the following is selected: • AC 1,2,3,5,10	+5
Access Type	If any are selected: • Signalized Intersection • Unsignalized Intersection	+1 for EACH Instance
Access Spacing	If any access spacing (upstream or downstream) is non-compliant	+1 for EACH Instance
Location/Proximity	Corner Site	+1
Crash Safety Index	≥8	+5

Table 5-7: Score Thresholds for TIS Likelihood

TIS Likelihood	Score Threshold
Low	<5
Uncertain	≥5 & <10
High	≥10

5.4.4 Guideline Development

A guideline was created to assist users in understanding the purpose of the tool and how to navigate it. The official guideline created can found be in Appendix E. It discusses background information regarding the permit process and TISs and outlines the home page, each page in the questionnaire, and the results page in the tool.

5.5 Potential Risks

This section outlines the risks that may be associated with the Access Permit TIS Form. This tool will be referred to as "the Form" in this section. The Form was developed to assist UDOT and access permit applicants in determining if a TIS may be waived for an access permit or what specific information is needed in a TIS. Potential risks of using the Form have been identified to protect UDOT's interest maintaining traffic flow and a safe environment on UDOT roads.

The answers and output of the Form are not law or binding in any way. In addition, UDOT personnel have the right to require documents and analysis even if this form does not recommend it. This is a potential risk as developers and consultants may use form references to challenge the UDOT requirements. It is imperative for UDOT to understand the elements of the Form to be able to address these challenges and provide necessary direction.

The Form does not allow the user to go backward to previous questions and re-answer a question due to the limitations of the software. The questionnaire will need to be restarted if the user wishes to change an answer. Hopefully this is more of an inconvenience than a risk, the potential risk is users may become confused and/or frustrated with the form and may question the usefulness and robustness of the form.

The Form does not eliminate the need for a pre-application meeting, nor is it intended to. The risk of using the Form in place of meeting with UDOT may breakdown communication with UDOT and dissuade applicants from working through complicated accesses. The Form is intended to make this meeting more meaningful and useful for both UDOT and the applicant.

The Form is not intended to replace a traffic impact study. The Form has been built with the ability to do some high-level trip generation calculation estimates and limited multiple land uses can be selected; however, it does not consider internal capture nor pass-by trips. Trip generation calculations in the form analyze each land use separately. Only a small set of the most general common land uses are included in this form. Trip generation numbers estimated in the

form have been designed to be higher than actual numbers due to a conservative estimation approach.

The Form only allows a maximum of four state roadway accesses to be entered into the form together, which may require the applicant to complete an additional form worksheet if more than four state roadway accesses are proposed.

The Form does not consider all pertinent location information and the recommended mitigation measures may exceed what is needed. Recommended mitigation measures are limited to left and right turn exclusive and auxiliary lanes. These are recommended based on an assumption that 25% of peak hour trips turn right or left and therefore, the calculations may not be completely accurate.

The scoring system used to determine the likelihood of a TIS requires additional testing and may need to be adjusted after being used. The outcome will lightly direct the applicant and UDOT on whether a TIS likelihood is Low, Uncertain, or High. Modifications should be made by UDOT personnel as the form is used and refined. Points are added up in the current scoring system, shown in Table 5-6 based on answers to questions in the Form. TIS likelihood score thresholds are likewise approximated as shown in Table 5-7.

Additional information other than what is included in the output report is not available through the Form. Other specific project or roadway information may be critical to determine the extents of required mitigation and documentation.

Though the Form will be password protected, it still may be possible that users can adjust and manipulate it. It may be good to verify the information received or safeguard the consistent application of the Form by filling out the form as part of the pre-application meeting.

5.6 Summary

The purpose of the Access Permit TIS Form is to assist developers and UDOT personnel to screen out projects that will not require a TIS and identify what specific information is needed

in a TIS. This tool is designed for an applicant to complete on their own but may also be used during the pre-application meeting itself. First, 11 decision criteria were chosen as a starting point in creating relevant questions and decisions for the development of the tool. These criteria include trip generation, land use, and access category. After questions were created, a flowchart was defined that created the outline for the tool developed. Once the flow of the tool was established, the Access Permit TIS Form was created. A step-by-step example was shown in this chapter to explain how the tool is meant to be used. This information will help any user navigate the tool and clarify questions that may arise. A list of potential risks associated with the use of the Access Permit TIS Tool have been identified to protect UDOT's interest in maintaining traffic flow and a safe environment on UDOT roads. Some potential risks include that the answers and output of the Form are not law or binding in any way; the Form does not eliminate the need for a pre-application meeting, nor is it intended to; and the Form is not intended to replace a traffic impact study.

6.0 CONCLUSIONS

6.1 Overview

As part of the approval process for an access to a property, developers are sometimes required to perform a TIS, which takes time and money. This process also demands a significant amount time and resources from UDOT's Permits Department. There is a need to increase the efficiency of the permitting process, increase the number of access permits allowing a TIS to be waived, and free up valuable time for UDOT's Permits Department. The purpose of this research was to create a semi-automated tool to reduce the number of access permits requiring a TIS. This tool, called the Access Permit TIS Form, will also help reduce the time needed for each permit while protecting UDOT's interest in maintaining safety and traffic flow on state roadways. It is planned to be implemented immediately at the end of the research process and will provide UDOT with a tool to maintain consistency throughout the state and aid in the process to determine if a TIS can be waived. This chapter summarizes research conducted and the process development of the Access Permit TIS Form.

6.2 Research Findings Summary

Multiple tasks were outlined to achieve the research objectives. Initially, interviews were conducted at each UDOT region and UDOT permit data were analyzed to identify current practices across Utah. Data were gathered on current permitting practices and key criteria used when UDOT and developers discuss whether a TIS is required. Focused best practice research was completed and a survey was developed and sent to several municipalities in Utah, DOTs in the United States, and provinces in Canada to assist in gathering data.

6.2.1 UDOT Region Interviews

Overall, the UDOT region interviews recommend that some preparation be completed on the applicant's end before the pre-application meeting. A preliminary site plan and an education of Administrative Rule R930-6 is recommended to be completed before the pre-application

meeting. In addition, land uses should be defined for the proposed development and trip generation numbers for daily and peak hour trips are also recommended. Consistency between UDOT regions is desired and decision-making criteria, risk management, and crash data were discussed as essential elements to analyze in a TIS. It was also discussed that the tool created must be easy for developers and UDOT personnel to use and improve the number of permit applications completed.

6.2.2 Focused Research

Nineteen agencies were chosen for the focused research to assist in summarizing industry policies and procedures occurring around the nation to help inform the results of this research. Sample TISs and other DOT and municipal access permit documents were found. TIS guidelines between UDOT and other agencies in the industry have several similarities including the design years that are typically analyzed, the analysis period, and the use of ITE data for trip generation estimations. It is recommended by both groups that crash data should be analyzed and a LOS analysis should be conducted to determine mitigation requirements. The largest discrepancies between UDOT and the industry occur in the application duration and TIS level of study. UDOT has a faster permit application duration, as the application review process is completed by UDOT in 45 days while industry takes 60-120 days to complete that process. The industry, on average, has three different TIS levels of study all based on the number of PHTs, while UDOT uses five different levels of study that may be based on the ADT of the roadway or the number of PHTs calculated.

6.2.3 Survey

A survey was created to identify practices and processes other agencies follow to determine the scope of a TIS and access permit application. The survey was sent out to all states and many municipalities in Utah, of which, 27 responses were recorded for 22 states and municipalities. Currently, UDOT requires a nonrefundable access application fee that is based on the application level while 13 agencies charge a fee with an access application. Researchers were interested in finding when in industry a TIS may be waived. Several responses stated that a TIS

is waived when the development has little to no impact on the roadway network, when an access already exists, and/or land uses are similar to those currently existing on the site. Ultimately, the department personnel will use their best judgment to decide whether a TIS can be waived.

The most helpful decision-making information that can be gained from a TIS include roadway geometry, a proposed site plan, anticipated site traffic projections, and anticipated queuing. It was asked what the easiest way is for developers and engineers to determine what the access application requirements are. Eighteen respondents stated that meeting with the agency is the best way to know what is required. Additionally, it was discovered that site trip generation, AM and PM peak hour volumes, adjacent intersection turning movements, and future roadway traffic conditions were the most important information to include in a TIS.

6.3 Process Development Summary

Upon analyzing the key findings from this research, a process was developed that can be used to determine if a TIS is required. This process included identifying decision criteria involved in the access permitting process and can assist in deciding to waive a TIS, creating a flowchart outlining questions for the Access Permit TIS Form, and the Access Permit TIS Form itself. The decision criteria included 11 initial criteria including trip generation, land use, and access category. These criteria were selected because they are involved in the access permitting process and can assist in deciding to waive a TIS. After refining the criteria, a flowchart was created to outline questions and thresholds for the tool development. From the flowchart, a simple spreadsheet was created that incorporated the criteria and thresholds found to determine if a TIS is required. The Access Permit TIS Form is built with a user-friendly interface, with six possible pages of questions. The form has many informational helps and links to assist those using this form. A guideline was developed to help users navigate the spreadsheet and provide UDOT with information to determine TIS needs. Potential risks associated with the process developed were identified and recommendations for future changes to further streamline the UDOT conditional access permit program were included.

7.0 RECOMMENDATIONS AND IMPLEMENTATION

7.1 Recommendations

This chapter outlines recommendations for the use of the Access Permit TIS Form as well as additional recommendations identified pertaining to the access permitting application process. These recommendations are based upon information gathered from UDOT Region Permitting interviews and the development of the Access Permit TIS Form.

7.2 Allow UDOT Engineer to Waive TIS Requirement for All Access Permit Levels

Currently, the UDOT Region Traffic Engineer cannot waive a TIS requirement for the Access Permit Level III or IV, however this is a planned change pending modification to Administrative Rule R930-6.

7.3 Update the TIS guidelines

The TIS Guideline, due to its prescriptive nature, attempts to standardize the TIS format and provide guidance for the UDOT Region Traffic Engineer to determine the level TIS based upon some generalized land use intensities. This may not be appropriate for all access applications; for example, an access for a hotel with 500 rooms would require a level III TIS which may not be necessary depending on the location, configuration of the adjacent roadway, and access plans of the development. On the other side of this spectrum, an access request for a driveway on a category 6 roadway, with less than 100 AADT, 500 feet from an interchange may require more consideration than a level I TIS. Our recommendation would be to remove the TIS levels, along with the access application levels from this guidance document and provide a matrix or an a la carte list for the UDOT Region Traffic Engineer to be able to identify and request the appropriate TIS criteria for each access application. An example of a matrix is shown in Table 7-1 (ITE 2006).

Table 7-1: Suggested Requirements for Various Types of Traffic Impact Analyses

(Institute of Transportation Engineers, 2006)	Access Location & Design Review	Small Development: Traffic Impact Assessment	Medium Development Traffic Impact Statement	Large Development Regional Traffic Analysis
	T ≤ 100 Peak Hour Trips	100 < T ≤ 500 Peak Hour Trips	500 < T ≤ 1,000 Peak Hour Trips	T > 1,000 Peak Hour Trips
Pre-application meeting or discussion	✓	✓	✓	✓
ANALYSIS of ROADWAY ISSUES				
Existing condition analysis within study area	✓	✓	✓	✓
Site distance evaluation	✓	✓	✓	✓
Nearby driveway locations	?	✓	✓	✓
Existing traffic conditions at nearby intersections and driveways		✓	✓	✓
Future road improvements		?	✓	✓
Crash experience in proximity to site	?	✓	✓	✓
Trip generation of adjacent development		?	✓	✓
Trip distribution analysis		✓	✓	✓
Background traffic growth		?	✓	✓
Future conditions analysis at nearby intersections		?	✓	✓
Mitigation identification and evaluation		?	?	✓
Site Issues				
Traffic generation	✓	✓	✓	✓
Traffic distribution	?	✓	✓	✓
Evaluate number, location & spacing of access points	?	✓	✓	✓
Evaluate access design, queuing, etc.	✓	✓	✓	✓
Evaluate site circulation	✓	✓	✓	✓
Other Analyses				
Gap analysis for unsignalized locations		?	?	✓
TSM/TDM[1] Mitigation measures (car- or van-pooling, transit, etc.) - transit agency participation.			?	✓
Effect on traffic signal progression, analysis of proposed signal locations	[2]	[2]	?	✓

Key: ✓ = required
? = may be appropriate on a case-by-case basis

[1]TSM/TDM = Transportation System Management/Transportation Demand management
[2]A traffic signal should not be permitted

An example of an a la cart list might be more like the following:

- ☐ Study area as defined by the region permits officer or region traffic engineer must include:
    - Property frontage, neighboring and adjacent parcels,
    - Site access location with distances to the cross and next adjacent up and down stream access points,
    - State highways and any intersection within 1/2 mile of the property line, and,
    - Intersection or freeway interchange impacted by more than 500 peak hour trips.
- ☐ Design year
    - Opening day of project
    - Five years after opening,
    - Twenty years after opening
    - Document and include all phases of development (includes out pad parcels)
- ☐ Analysis period. For each design year analyze site and adjacent road traffic for:
    - Weekday a.m. Peak hours
    - Weekday p.m. Peak hours
    - Saturday peak hours
    - Special event peak hour
- ☐ Data Collection
    - Daily counts
    - Turning movement counts
    - Identify site and adjacent street roadway and intersection geometries
    - Traffic control devices, such as signals and signs
    - Automatic continuous traffic counts for at least 48 hours
    - Crash data
- ☐ Trip generation – Use equations or rates available in latest edition of ITE Trip Generation. Where equations are unavailable for intended land use, perform trip rate study and estimation following ITE procedures or develop justified trip rate agreed to by the department
- ☐ Trip distributions and assignment – document distribution and assignment of existing, site, background, and future traffic volumes on surrounding network of study area

- □ LOS Capacity analysis
    - For all intersections
    - Existing conditions
    - Design year without project and design year with project
- □ Traffic signal impacts for proposed traffic signals
    - Traffic signal warrants as identified
    - Traffic signal drawings as identified
    - Queuing analysis
    - Traffic systems analysis, including deceleration and weaving
    - Traffic coordination analysis
- □ Right-of-way access
    - Identify right-of-way, geometric boundaries and physical conflicts
    - Investigate existence of federal or state, no access or limited access control line
    - Accident and traffic safety analysis, existing vs. as proposed
- □ Design and mitigation
    - Determine and document safe and efficient operational design needs based on site and study area data
    - Identify operational concerns and mitigation measures to ensure safe and efficient operation

The TIS formatting guideline recommends placing all figures and tables after the appendix of a TIS. As this information typically lends itself to the cognitive story telling process with figures and tables communicating more effectively spatially dependent information or comparative differences, our recommendation would be to include this information in the body of the TIS. This format would present information as it is relevant and not as an afterthought after the appendix. Such a format might follow this outline:

1. Executive Summary
2. Introduction
3. Study Area Conditions
    3.1. Site Location
    3.2 Adjacent Land Use
    3.3 Traffic Control
4. Proposed Project
    4.1 Land Use
    4.2 Site Accessibility
5. Analysis of Existing Conditions

5.1 Roadway System
5.2 Traffic Volumes
5.3 Capacity and Level of Service
5.4 Transportation Safety Analysis

6. Project Traffic
   6.1 Trip Generation
   6.2 Trip Distribution and Assignment
   6.3 Mode Split
   6.4 Site Traffic
7. Background Traffic Analysis
   7.1 Background Traffic Volumes
   7.2 Planned Roadway Improvements
   7.3 Level of Service and Queuing
8. Project Traffic Analysis
   8.1 Total Traffic Volumes
   8.2 Planned Roadway Improvements
   8.3 Level of Service and Queuing
9. Conclusions & Recommendations
10. Appendix
    10.1 Traffic Counts
    10.2 Model Outputs
    10.3 Request for Change of Access (if applicable)

7.4 Improve the Application Process

Several recommendations are suggested for improvements to the application process. These include incorporating the Access Permit TIS Form into the pre-application meeting, populating the access permit application during the pre-application meeting, and include a redline review meeting with an application submittal.

7.4.1 Incorporate the Access Permit TIS Form into the Pre-Application Meeting

The Access Permit TIS Form is designed to help educate applicants and their consultants of the potential traffic impacts associated with providing access to a property. An applicant or consultant may want to use the form in preparation for the pre-application meeting to be able to anticipate possible mitigation improvements of their proposed access and to manage the scope of

their project. We recommend using the form to facilitate the discussion of the pre-application meeting and to guide the applicants understanding of traffic safety implications involved with providing additional access to the state's highway system.

7.4.2 Populate the Application During the Pre-Application Meeting

We recommend completing portions of the application as part of the pre-application meeting. This is an opportunity to assist the applicant in identifying potential traffic impacts they may not be aware of which may require evaluation and possibly mitigation. Included with this form is a checklist of the documents, plan sheets, and other items required for the access application submittal.

7.4.3 Include a Redline Review Meeting with the Application Submittal

We recommend scheduling a meeting with the applicant to verify the application is complete to facilitate a streamlined review process. This meeting is designed to provide the applicant with an opportunity to sit down with UDOT staff to review the completeness of their application to ensure the application contains all necessary documentation.

7.5 Provide Training Opportunities

Individuals newer to UDOT Permits have expressed uncertainty applying the R930-6 to access management during their initial permitting experiences. Rather than relying on individuals to interpret and apply this rule on their own, we recommend a practical training class to educate UDOT Region Traffic Engineers or UDOT Permits Officers on the UDOT Permitting Process and the application of R930-6. This training class would provide UDOT with opportunity to improve the consistency of the application of R930-6 throughout the State. This could be accomplished by means of hiring a consultant to train UDOT staff, hiring a training coordinator, or by producing a training video.

7.6 Improve the UDOT Access Permit Database

We recommend improving the access permit database by:

- Including the TIS study level in the database
- Track all pre-application meetings in the database to know of previous efforts pertaining to the development of properties and see if there are undevelopable properties based upon access restrictions
- Track the duration from the pre-application meeting with the timelines of applicant revisions
- Track when multiple applications have been submitted at each site location, even when the application doesn't produce an access permit.

7.7 Create a Singular UPLAN Map

We recommend creating a singular UPlan map with all pertinent TIS information to consolidate this information for consultants and UDOT. This map may include:

- Roadway classification
- Speed limits
- Crash data

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APPENDIX A: UDOT Region Interviews

This appendix provides questions used during each UDOT region interviews. These questions were used as a guide to facilitate discussion of the access permit application process. Also included in this appendix are notes taken from the interviews conducted.

A.1 Interview Questionnaire

This section shows the questions brought to the UDOT Region interviews to assist in facilitating discussion on the access permitting process and TIS requirements.

1. How does a typical access permitting process go through the region?
2. What are typical questions being asked by developers? Are they questions that are answered in Administrative Rule R930-6?
3. What are typical questions you ask the developer?
4. How often are TIS's being waived?
5. What factors aid in the waiver of a TIS - what information do you typically need to know/have from the developer before waiving a TIS?
6. Is a TIS ever waived before a pre-application meeting?
7. What are the typical reasons that you don't waive a TIS?
8. Do you ever require a trip generation study before or in lieu of requiring a TIS? If so, how often?
9. When a TIS is required how are you determining the scope needed for the TIS (Peak periods, study intersections, future analysis)?
10. What improvements to UDOT's TIS Guidelines would you like to have in a TIS for each level?
11. How valuable is a TIS? What information do you find valuable from it?
12. Is there any information that you feel is missing or should be included in Admin Rule R930-6 to better inform developers of TIS expectations/requirements?
13. Do you have any feedback/input about the survey questions that will be sent out to other DOT's?

A.2 Interview Notes

This section outlines the notes taken during the UDOT Region interviews and the BYU interview with Dr. Grant Schultz.

Region 1:

Typical Permitting Flow

- Get general information on the plan
- Direct the applicant to U-Plan and the R930-6
- Direct them to and help them fill out the Pre-Application form

In Pre-Application Meeting

- Conducted every Wednesday
- Discuss the needs of both the road network and the applicant
- Review on concepts, ideas and the direction desired for the plan
- Use this time to educate the applicant on the rule

TIS

- Used to justify request and requirements of UDOT
- Used as risk management (remove speculation of what is needed)
- Used as back-up when issues arise

Data request

- Development
  - Size
  - Type
  - Some cases this is not critical to know
- Site plan – Getting in early to direct the plan
- Full Build data not just phase being built

TIS Concerns

- The difference between Rural and Urban differences
- Charter Schools need a TIS every time
- Waive TIS only when low risk of issues
- What happens with the border line developments
- Use Traffic memo more
- Decisions are made by comfort level

Region 2:

How does a typical access permitting process go through the region?

The process is generally initiated by the applicant calling in and asking for an access. Few applicants have any idea of what is required for an access permit. A pre-application meeting is scheduled and the applicant is advised to bring a site plan. In that meeting, the permit requirements are detailed to enable the applicant to submit a complete application.

What are typical questions being asked by developers? Are they questions that are answered in Administrative Rule R930-6?

Developers typically want to know how much it is going to cost them to get an access. Most developers don't know about Admin Rule R930-6 and the requirements of getting an access. A lot of the times the City that the development is in is notifying the developer that they need to get a permit from UDOT for the access.

What are typical questions you ask the developer?

What type of business, best guess of traffic (some know how much some have no idea), at grade driveway/typical UDOT driveway.

How often are TIS's being waived?

If TIS falls within Level 1 it is waived about 100% of the time.

If TIS is within a Level 2 it is waived about 40%-50% of the time

What factors aid in the waiver of a TIS - what information do you typically need to know/have from the developer before waiving a TIS?

Land use, idea of trip generation, location of development, access type.

Is a TIS ever waived before a pre-application meeting?

No, and the pre-application is always required.

What are the typical reasons that you don't waive a TIS?

Certain developments/land uses such as gas stations, multi-use, or day care.

Do you ever require a trip generation study before or in lieu of requiring a TIS? If so, how often?

Sometimes – just depends on circumstances of development.

When a TIS is required how are you determining the scope needed for the TIS (Peak periods, study intersections, future analysis)?

Scope is generally determined by Traffic Engineer hired by the developer discussing the development with the Region Permits Engineer.

What improvements to UDOT's TIS Guidelines would you like to have in a TIS for each level?

Ranges/criteria between levels were too broad and could be condensed.

How valuable is a TIS? What information do you find valuable from it?

- Land use
- Trip Generation
- Development meets code requirements
- Mitigations
- Site plan

Is there any information that you feel is missing or should be included in Admin Rule R930-6 to better inform developers of TIS expectations/requirements?

Don't have any notes about this question.

Do you have any feedback/input about the survey questions that will be sent out to other DOTs'?

The questions looked good.

Other:

Brad felt that the tool that is to be developed will need to be generic enough that developers will be able to use it as they may not know what is being asked. The tool should also include the access category and should tell the developer more than if they need a TIS (i.e. complicated situation, site plan). Brad was also concerned about validating what the developer would put into the tool.

Region 3:

Austin expressed the purpose for this interview and this streamlining project was to help define the grey area to give better direction and consistency between UDOT Regions pertaining to the TIS requirements.

How does a typical access permitting process go through the region?

The process is generally initiated by the applicant calling in and asking for an access. Few applicants have any idea of what is required for an access permit. A pre-application meeting is scheduled and the applicant is advised to bring a site plan. In that meeting, the permit requirements are detailed to enable the applicant to submit a complete application.

Some applicants get information from the UDOT website detailing the requirements for access without understanding Rule R930-6 or if these requirements apply to their access.

What are typical questions being asked by developers? Are they questions that are answered in Administrative Rule R930-6?

The general question from developers or applicants is what is required for their access and how long does it take to get the permit.

What are typical questions you ask the developer?

What they are going to do, what type of access do they need, what is on their site plan.

How often are TIS's being waived?

Estimated that TISs are being waived 80% of the time.

What factors aid in the waiver of a TIS - what information do you typically need to know/have from the developer before waiving a TIS?

If the access does not require any improvements and meets current standards.

If the same type of business is replacing an existing permit.

We often will tell the applicant what is required for their access, we don't wait for them to ask questions.

Is a TIS ever waived before a pre-application meeting?

Austin indicated that informally he may discuss some of the requirements which may or may not apply to specific access requests with the applicant before the pre-application, but that the pre-application is always required to formally waive the TIS requirement for access.

What are the typical reasons that you don't waive a TIS?

Certain developments always require a TIS, i.e. Walmart.

Do you ever require a trip generation study before or in lieu of requiring a TIS? If so, how often?

Not generally in lieu of a TIS. This information is helpful if broken down and distributed through a site to help identify what specific concerns need to be resolved with a TIS.

When a TIS is required how are you determining the scope needed for the TIS (Peak periods, study intersections, future analysis)?

Scope is generally determined by consultants phoning the Region Permits Engineer.

What improvements to UDOT's TIS Guidelines would you like to have in a TIS for each level?

Did not ask this question.

How valuable is a TIS? What information do you find valuable from it?

If turning lanes are necessary.

What is the safety condition at the location?

What impact and conflicting volume points are pertinent to this access.

Is there any information that you feel is missing or should be included in Admin Rule R930-6 to better inform developers of TIS expectations/requirements?

ITE trip generation information

Phasing information, maybe gather planning information from the cities or MAG.

TIS requirements

Corridor Agreements

Do you have any feedback/input about the survey questions that will be sent out to other DOTs'?

None yet.

Region 4:

3 permitting officers

The preapp meeting (step 1 application) is an onsite visit where at least 2 officers go and visit the site. At the site, the two officers will decide if a TIS is required or not or what possible impacts the development could have.

Trip gen is done after site visit

Nothing is recorded until the process is finished, so they have no physical record of when they approve or waive TIS unless the process is finished and the access is officially approved, but said he has no record of when they deny.

Approximately 80% of the applications have the TIS waived

The TIS is required if they do not feel confident about allowing the access without a TIS

Favorite part of the TIS is the mitigation/recommendation section

They often have to remind firms to use the most up to date reference manuals

He and the other officers have only been in their position for less than a year

Made a comment about how R930-6 requires a lot from developers in the step 1 application. Most developers don't even know or do the first step. Sometimes a local farmer building a home is understandable but other larger developers who try to cut corners seemingly show no effort and try to save time and money

They have been trying to figure out how to manage permitting. Some kind of manual of instruction would help, although he understands that providing instruction for every scenario would be difficult and impossible. Training on how to properly manage permitting would be good. Or on how to apply and use R930-6

A lot of the developers they deal with are local farmers who want to build a house or slightly widen their driveway. Other developers want to build large properties along major roads.

They try to negotiate with the developer when possible to have him build pockets and lanes, etc. in order to not have to do a TIS

After approving a permit, if not built within a year, it "expires"

Thought that the survey questions were good, will let us know if anything comes to mind.

They have a high number of applicants who want to build something along a high AADT/speed road.

BYU:

Dr. Schultz and Marlee showed us portions of her research thesis which considers the definitions outlined in Rule R930-6 for the different access roadway categories and compares how the actual driveway spacing densities (derived from LiDAR data collected by Manley), posted speed limits and traffic match with the definition.

Application for the use of the maps and data developed by Marlee's project include:

- Map indicating whether a segment of roadway matches the access spacing requirements as outlined in R930-6.
- Combining the access spacing and crash data to better target and identify segments where reducing access points may improve the safety of the roadway.

In addition, we discussed in some detail the guidance outlined in UDOT's Traffic Impact Study Guidelines, particularly how the TIS level as outlined by ADT does not match national standards.

Dr. Schultz advised that for every project the developer or their engineer should:

- Know what traffic is on the adjacent roadway network.

- Know what the national trip generation values are for their type of development and provide added information if their development is different from the national average.
- Know the driveway requirements to accommodate the traffic from and to their site.
- Know the safety elements and crash statistics on the adjacent roadway.

APPENDIX B: Focused Best Practice Research

Appendix B includes a summary of data found in the Focused Best Practice Research conducted on 19 agencies across the United States. Research found on these agencies include TIS guideline and TIS formatting information.

Table B.1: TIS Guidelines, Part A

Agency	TIS Waived By	Study Area Defined By	Design Year	Analysis Period
Cache County, Utah	Director	County	Opening Day	AM & PM Peak Hours
Provo, Utah	City Engineer	City Engineer	Existing	
Sandy, Utah	City Engineer			
ADOT	Regional Traffic Engineer	Project Type & Size, Regional Traffic Engineer Can Change	By Type & Size	AM & PM Peak Hours. Also include analysis of peak hour trips generation by development if this exceeds the adjacent highway peak hour traffic volume.
NDOT	District Engineer, <100 ph trips generated	Engineering Judgment	20 years or build out of area	AM & PM Peak Hours
TxDOT	TxDOT: engineering study vs TIA		build out of development	
InDOT	Not Meet Preliminary Warrants; InDOT personnel	ITE Recommended, reviewers & preparer	Completion,build-out and occupancy	AM & PM, Maybe Noon
OhDOT	District Office	District TIS Review Team	20 years or build out of area	Weekday, maybe weekends
ODOT			5-20 years	TBD

Table B.1 Continued

Agency	TIS Waived By	Study Area Defined By	Design Year	Analysis Period
FDOT	FDOT's Reviewer	FDOT Reviewer and applicant	Existing, Opening, Development Phases	AM & PM or Highest combination of development and background traffic
NYSDOT	Regional Traffic Engineer			
NYC				
CalTrans	Trip Gen Thresholds, Caltrans	State Highway Facilities Impacted	The years the project phases are anticipated to complete construction.	AM & PM Peak Hours
Utah Co	County Engineer			
SLCo	County Transpo Engineering Manager			
Washington Co	County Representative	Depends on the TIS category (3)	Depends on the TIS category (3)	AM & PM Peak Hours
Spanish Fork	City Engineer			
St. George	City's Representative	City Representative	By Type & Size	AM & PM Peak Hours
FHWA				

Table B.2: TIS Guidelines, Part B

Agency	Trip Generation	Conflict Analysis	Capacity Analysis	TIS / Format
Cache County, Utah	Projected Traffic	Traffic Flow Diagram	As determined by the County	Well Defined / Rigid
Provo, Utah	Use Local Rates		As determined by City Engineer	Provide on & off-site improvement analysis, conclusions, and recommendations
Sandy, Utah				The City may require a traffic impact analysis prepared by a registered engineer to determine access, circulation, transportation demand management, and other reasonable transportation system mitigation requirements.
ADOT	ITE/other when approved	3-year crash data	LOS computed for all intersections in study area, operational analyses for signalized intersections. The traffic impact of the development on the State highway in the horizon year shall be mitigated to level of service C or to provide the same level of service without the development impact.	Well Defined Outline
NDOT	ITE/local	3-year crash data	LOS D accepted for site & non-site traffic	Well Defined Outline
TxDOT	ITE/other acceptable data		LOS Analysis	TIA's require operational analyses and recommendations/mitigations, engineering studies only 4-steps, examples of when TIA vs engineering study

Table B.2 Continued

Agency	Trip Generation	Conflict Analysis	Capacity Analysis	TIS / Format
InDOT	ITE/Secondary/Other	ITE Recommended Prac	LOS Intersection and Roadway Analysis	sample outline, min of 3 copies provided, executive summary, suggested figures/tables
OhDOT	ITE			Min of 3 copies provided, process flow chart
ODOT	Travel Demand Model/ITE	Analyze specific safety elements, typically the most recent 3 to 5 years.		
FDOT	ITE			
NYSDOT				Well Defined Outline; Commercial Driveway/Access Permits; Expedited Review for Commercial Access Highway Work Permits; Application Checklist:
NYC				Curb Cuts: http://www1.nyc.gov/site/buildings/homeowner/curb-cuts.page; Permit Process: http://www1.nyc.gov/site/buildings/business/building-permits.page
CalTrans	ITE, local			Outline with Minimum Contents
Utah Co				
SLCo				Required for developments in the Foothills and Canyons Overlay Zone
Washington Co			LOS D okay	Uses guidelines and requirements in "City of St. George TIS Guidelines"
Spanish Fork				Vague Outline
St. George	ITE/Other	3-year crash data	HCM method unless specified by City Rep	Well Defined Outline
FHWA	Trip Generation	Conflict Analysis	Capacity Analysis	TIS / Format

Table B.3: TIS Guidelines, Part C

Agency	Permit App Duration	Future time horizon Analysis	Notes	Level of Study
Cache County, Utah		by development phase years		
Provo, Utah				required for developments 3 acres or greater, or 10 units or greater
Sandy, Utah				
ADOT		5 Years after build		100-500 PH Trips, >500 PH trips
NDOT				>100 PH trips, <100 Ph trips may need one based on contribution to congestion
TxDOT				Engineering Study when access requirements are satisfied, TIA when permit for access connection requested
InDOT				<100 PH Trips, 100-500 PH trips
OhDOT	Within 60 working days of receiving an acceptable/completed TIS, restarts if have problems			>100 PH trips, may be required for <100 Ph trips if District Office determines
ODOT	120 days after app is deemed complete, 30 days before that to complete			2 different ways recommend: 1) a. 0-99 Ph trips, b.100-299, c. 300 to 499, d. >500 - add design year for each 2) a. small development, b. moderate 500-1,000 PH Trips, c. large >1,000 PH Trips, d. moderate or large multiphase- add design year for each
FDOT			69 Page document for TIS Guideline	50-100 PH Trips- study area radius of .5miles, >100 PH Trips-lgr scale study with study area radius of 3 miles

Table B.3 Continued

Agency	Permit App Duration	Future time horizon Analysis	Notes	Level of Study
NYSDOT				
NYC				
CalTrans				>100 PH Trips, 50-100 Ph trips and state highways have noticeable delay, 1-49 PH trips and noticeable delay LOS E & F or safety issues
Utah Co				
SLCo				
Washington Co				100-500 PH trips, 500-1000 PH trips, >1000 PH Trips
Spanish Fork				>100 PH trips
St. George				>100 PH trips, <100 PH trips if "problem" area
FHWA	Permit App Duration	Future time horizon Analysis	Notes	Level of Study

Table B.4: TIS Formatting, Part A

Agency	Executive Summary/Intro	Proposed Project	Study Area
UDOT	Y	Y	Y
Cache County, Utah	Y	Y	Y
Provo, Utah			
Sandy, Utah			
ADOT	Y; ES: site loca, study area, develop info, principal findings, conclu/recomm	Y; Site loca, land use, site plan, develop phase and timings	Y; Study area, land use, site accessibility
NDOT	Y; ES: describ proj and findings	Y; Included in Intro: describ site and devel, site uses, densities, land uses	Y; Included in Intro: existing/proposed rdwy and intersections

Table B.4 Continued

Agency	Executive Summary/Intro	Proposed Project	Study Area
TxDOT			
InDOT	Y; Title page specifics, Intro: purpose and obj, ES: site loc, develop descrip, findings, conclu/recomm	Y; site loca, site plan, land use, zoning, proj phasing, off-site devel	Y; included in existing conditions
OhDOT			
ODOT			
FDOT			
NYSDOT	Y; ES:project,impacts,mitigation, Intro: purpose, proj descrip and loca	Y; included in Intro	Y; included in existing conditions
NYC			
CalTrans	Y	Y; descrip, loca, site plan, land use, zoning, circulation network	Y
Utah Co			
SLCo			
Washington Co	Y; purpose & obj, ES: site loc & area, findings, conclu, recomm	Y; site loc,land use, devel details, site plan,	Y; Study area, land use, site accessibility, existing & future rdwy system
Spanish Fork		Y	Y
St. George	Y; purpose & obj, ES: site loc & area, findings, conclu, recomm	Y; site loc,land use, devel details, site plan,	Y; Study area, land use, site accessibility, existing & future rdwy system
FHWA			

Table B.5 TIS Formatting, Part B

Agency	Existing Conditions	Projected Traffic	Safety Analysis
UDOT	Y	Y	Y
Cache County, Utah	Y	Y	Y
Provo, Utah	Y	Y	Y
Sandy, Utah			
ADOT	Y; Phy char, volumes, LOS, safety, data sources	Y; Site (4-step model), non-site, and total traffic	Y; Traffic safety, ped/bike consid, speed consid, traffic control & signal needs, TDM
NDOT	Y; AM & PM peak	Y; Project existing vol, use ITE for trip gen, direct distrib, trip assign; specifics about casinos	Y
TxDOT			
InDOT	Y; study area limits, land use, site accessibility,	Y; site, non-site, total traffic	Y
OhDOT			
ODOT			
FDOT			
NYSDOT	Y; phy char, volumes, peak periods, growth rates	Y; proj descrip,bkgd volmes, internal circulation, trip gen/distrib, full devel of traffic counts	Y; analysis of crash data, crash rates and ave rates, safety deficiencies
NYC			
CalTrans	Y	Y	
Utah Co			
SLCo			
Washington Co	Y; Phy & rdwy char, TCDs, ped/bike, volumes, peak periods, LOS, safety	Y; site traffic forecasts, trip gen, mode split, trip dist, trip assign, site & non-site & total vols	Y
Spanish Fork	Y	Y	Y
St. George	Y; Phy & rdwy char, TCDs, ped/bike, volumes, peak periods, LOS, safety	Y; site traffic forecasts, trip gen, mode split, trip dist, trip assign, site & non-site & total vols	Y
FHWA			

Table B.6: TIS Formatting, Part C

Agency	Conclusions/ Recommendations	Appendices	Figures/Tables
UDOT	Y	Y; Include traffic counts, capacity analysis, crash summary, request for change if needed	Y; Site loca, site plan, existing charac and vol, collision diagram, site trip gen summary, direction distrib, assignment of site/non-site, traffic capacity analysis, project LOS with & w/o project, recom improv
Cache County, Utah	Y	Y; Include traffic counts, capacity analysis, crash summary, request for change if needed	Y; Site loca, site plan, existing charac and vol, collision diagram, site trip gen summary, direction distrib, assignment of site/non-site, traffic capacity analysis, project LOS with & w/o project, recom improv
Provo, Utah	Y		
Sandy, Utah			
ADOT	Y; Site access, rdwy improve, TDM, other	Y; Traffic counts, capacity analysis, traffic signal needs study, crash data/analysis/summary	
NDOT			Y; Specific site plan requirements
TxDOT			
InDOT	Y; site access, rdwy improve, transpo system management actions, traffic impact of devel, adequacy of proposed plan		
OhDOT			
ODOT			
FDOT			

Table B.6 Continued

Agency	Conclusions/ Recommendations	Appendices	Figures/Tables
NYSDOT		Y; vol report, capacity analysis output, traffic data/calcs, crash analysis diagrams	Y; site loca, study area, local hwy network, phy char, existing & background volumes, site plan, trip distrib, trip gen, capacity analysis results, crash rate comparison
NYC			
CalTrans	Y; LOS and MOE values with & w/o mitigation measures, mitigation phasing plan, defined responsibilities, cost est	Y; traffic data, how collected, worksheets	
Utah Co			
SLCo			
Washington Co	Y	Y; traffic vol counts, capacity analysis wksts, traffic signal needs, crash data	Y; site loca, site plan, existing transpo sys & peak hour vols, collision diagram, est site traffic gen, direc distrib, site & non-site & total traffic, LOSs, improvements
Spanish Fork	Y		
St. George	Y	Y; traffic vol counts, capacity analysis wksts, traffic signal needs, crash data	Y; site loca, site plan, existing transpo sys & peak hour vols, collision diagram, est site traffic gen, direc distrib, site & non-site & total traffic, LOSs, improvements
FHWA			

APPENDIX C: Survey

Appendix C has supplementary information about the survey that was distributed to DOTs and municipalities across the nation. Survey questions, flow, and results will be displayed in this appendix.

C.1 Survey Questions

The following information displays the access permit process survey including information and questions included in the survey. This survey was sent to DOTs and municipalities in the United States, and Canadian provinces.

Access Permit Process Survey

Research is being conducted through the Utah Department of Transportation (UDOT) by Avenue Consultants to improve the permitting process for developers and UDOT's Permitting Department. This survey is meant to identify practices and processes other agencies follow to determine the scope of a Traffic Impact Study (TIS). Responses from this survey will streamline UDOT's permitting process to improve their systems quality and efficiency for access to the state roadway network. Please complete this survey to the best of your ability.

Required

Contact Information

1. Name: *

2. Phone #: *

3. Email: *

4. Agency: *

5. Position: *

Access Permit

6. **Access requests are approved by (select all that apply):** * *Check all that apply.*

- Agency Permit Engineer.
- Agency Traffic Engineer.
- Agency Director.
- Other: _____

7. **An access permit is needed to manage (select all that apply):** * *Check all that apply.*

- Access restrictions based on roadway type.
- Access restrictions determined by access spacing.
- Corridor agreements between stakeholders.
- The degree of proposed impacts identified in a TIS (traffic impact study).
- Other: _____

8. **For each roadway access application, do you base the access requirements on a (select all that apply):** * *Check all that apply.*

- Visit to the site. TIS.
- Review of the site plan with the applicant.
- Review of full engineering drawings.
- Other: _____

9. **An access application typically includes (select all that apply):** * *Check all that apply.*

- An application and fee.
- A Site Plan.
- A TIS.
- Other: _____

10. **Access permit applications are approved within:** * *Mark only one oval.*

- 30 days.
- 30 to 60 days.
- 60 to 90 days.
- More than 90 days.
- Other: _____

Traffic Impact Study

11. **A TIS is required when:** * *Mark only one oval.*

- There are more than 50 peak hour development generated trips.
- There are more than 100 peak hour development generated trips.
- There are more than 100 daily development generated trips.
- Always require a TIS.
- Other: _____

12. **A TIS may be waived for developments (select all that apply):** *
Check all that apply.

- With small impacts.
- Where no access improvements are required.
- With existing driveway access and similar proposed uses.
- Where the developer's proposed roadway improvements address access needs (e.g. addition of a right turn pocket, median, etc.).
- Other: _____

13. **How do you determine what is to be included in a TIS (select all that apply)?** *
Check all that apply.

- We have predetermined requirement levels for a TIS based on land use intensity/type.
- We base it on the location of development and surrounding developments.
- We determine it on a case-by-case basis after meeting with applicant.
- Other: _____

14. **The easiest way for developers and engineers to determine what their access requirements are is by:** *
Mark only one oval.

- Checking the Agency website.
- Reading the Agency Zoning Ordinance / State Law.
- Meeting with the Agency.
- Other: _____

15. **The most helpful decision-making information from a TIS is (select all that apply):** * *Check all that apply.*

- Roadway geometry / proposed site plan.
- Existing traffic counts.
- Anticipated site traffic projections.
- Roadway level of service.
- Anticipated queuing.
- Crash or safety analysis.
- Other:

16. **TISs should include and analyze (select all that apply):** * *Check all that apply.*

- Site trip generation.
- AM Peak hour traffic volumes.
- PM Peak hour traffic volumes.
- Pedestrians impacts.
- Adjacent intersection turning movement volumes.
- Future roadway traffic projections.
- Signal warrants.
- Gap data.
- Other:

17. **How is trip generation to be calculated?** * *Mark only one oval.*

- Using the latest ITE trip generation manual.
- Using local data of similar land use.
- Other:

18. **What horizon years after opening day are typically required to be analyzed in a TIS (select all that apply):** *

Check all that apply.

- 5 years
- 10 years
- 15 years
- 20 years
- Other:

19. **The TIS should:** * *Mark only oneoval.*

- Follow a standard format.
- Only address decision making criteria (e.g. only a right turn lane is required based on existing roadway geometry).
- Other: _____

20. **Are there any practices which have been implemented that you feel are unique to you?** * *Mark only one oval.*

- Yes.
- No.

21. **If yes, please explain.**

22. **Do you have any standard documentation that you could provide?** * *Mark only one oval.*

- Yes, please contact me.
- No.

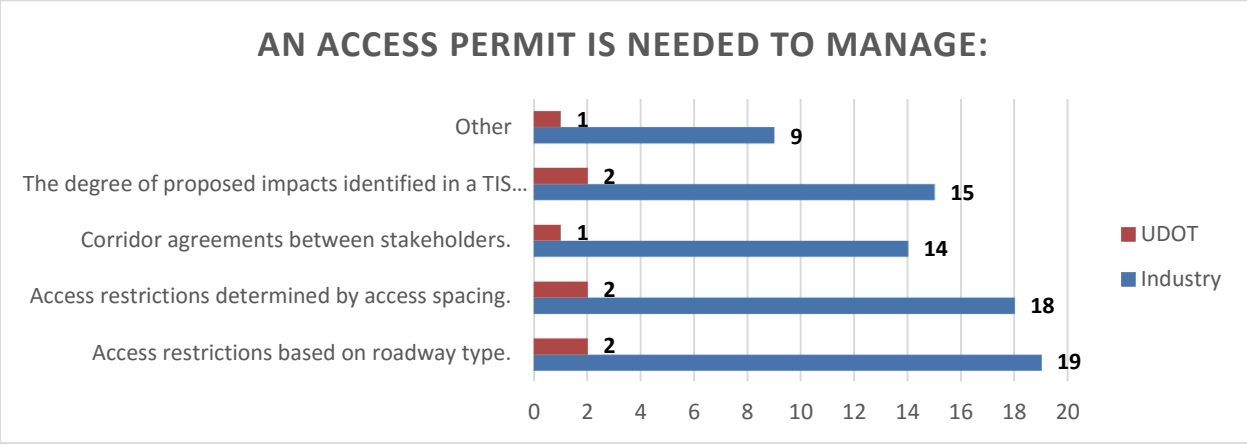
C.2 Survey Results

Twenty-seven agencies responded to the survey with 22 unique agencies. Three responses were collected from UDOT and two responses were given by CalTrans, NMDOT, and WisDOT giving a total of 27 survey responses. The following are the results of this survey. Some questions are separated into UDOT responses, which total three responses; and other agency responses, totaling 24 responses. This was done to compare industry results with UDOTs current practices.

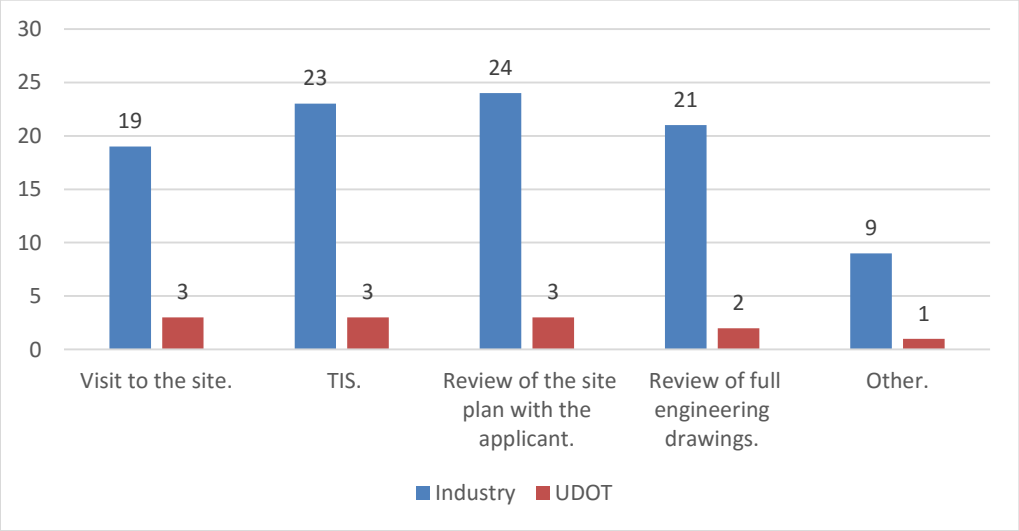
Access Permit Process Survey

Access Permit

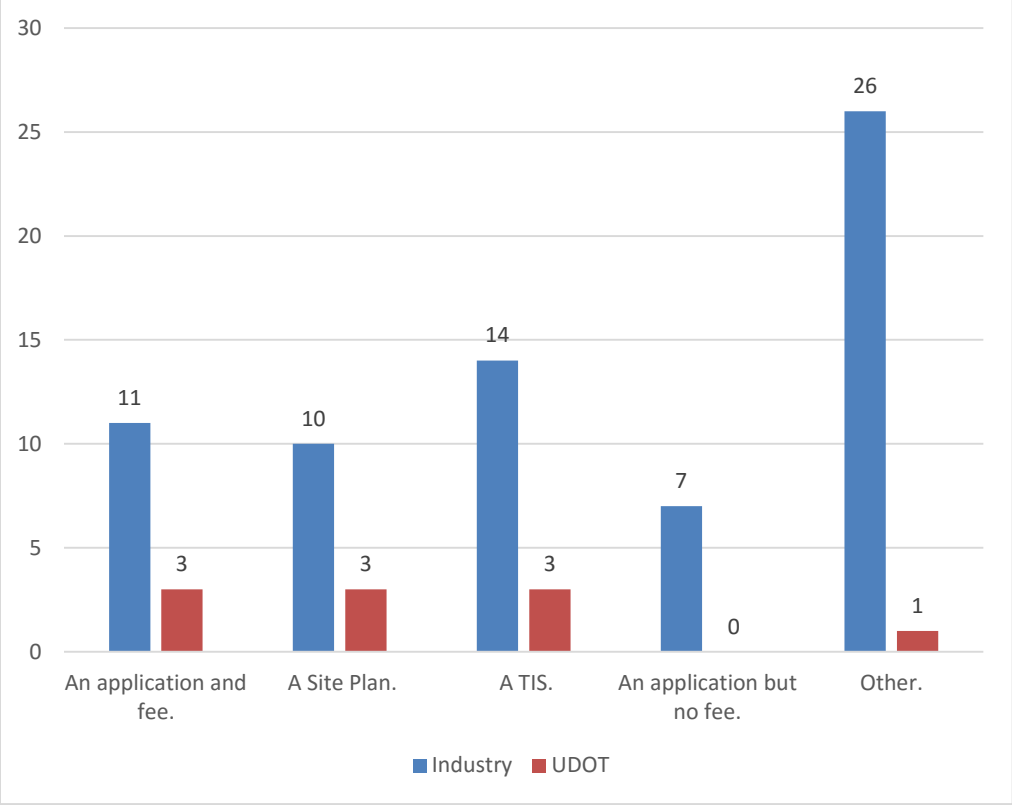
7. **An access permit is needed to manage (select all that apply):** * *Check all that apply.*



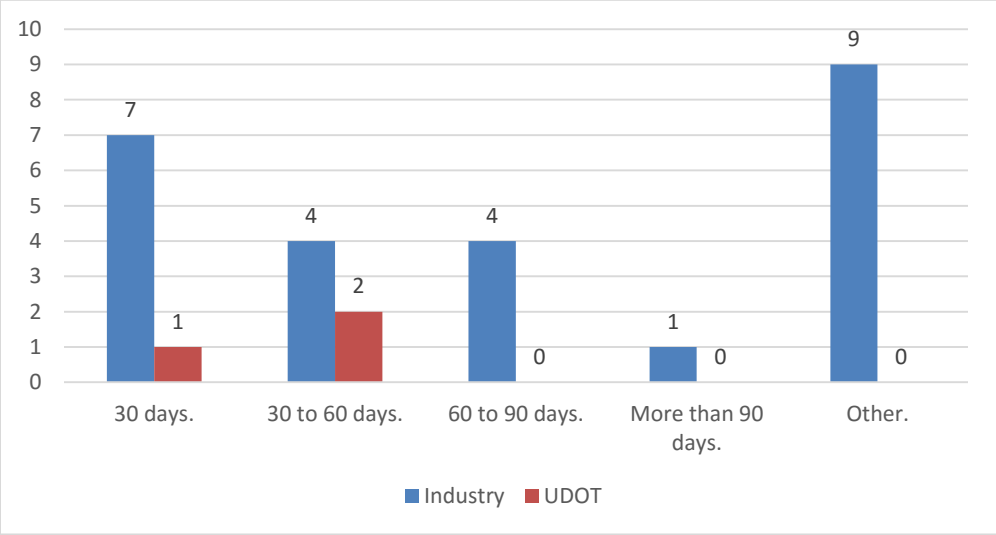
8. **For each roadway access application, do you base the access requirements on a (select all that apply):** * *Check all that apply.*



9. An access application typically includes (select all that apply): * *Check all that apply.*



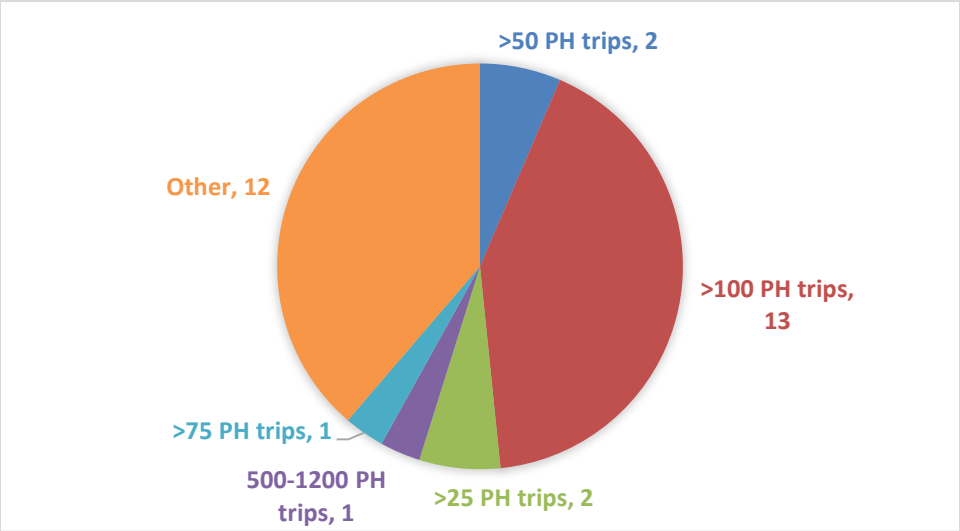
10. Access permit applications are approved within: * *Mark only one oval.*



Traffic Impact Study

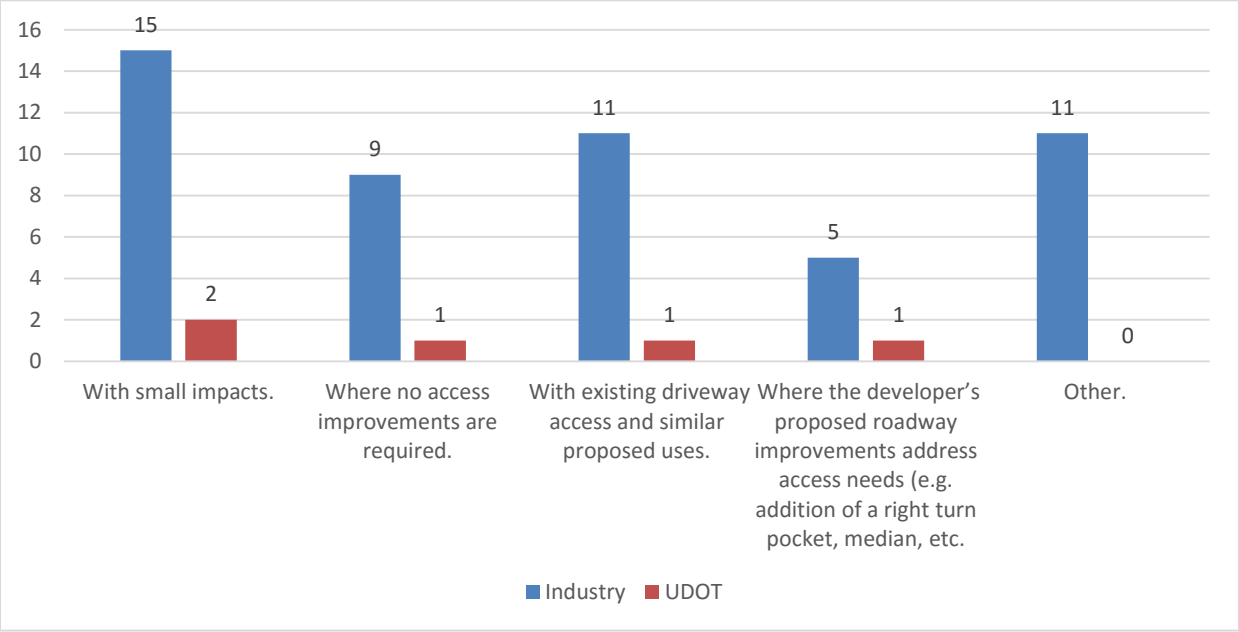
11. A TIS is required when: *

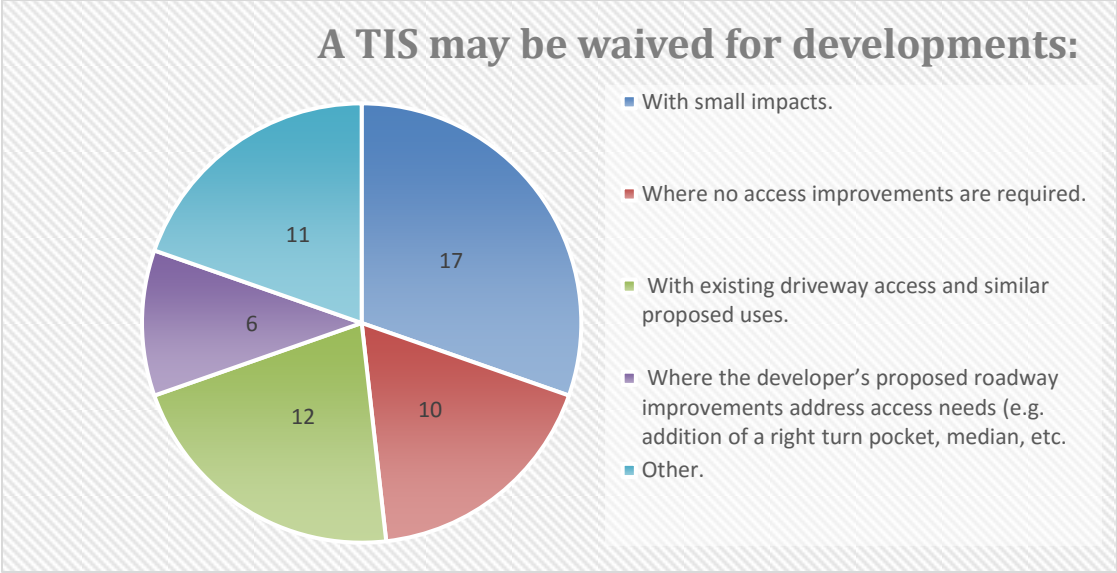
Mark only one oval.



12. A TIS may be waived for developments (select all that apply): *

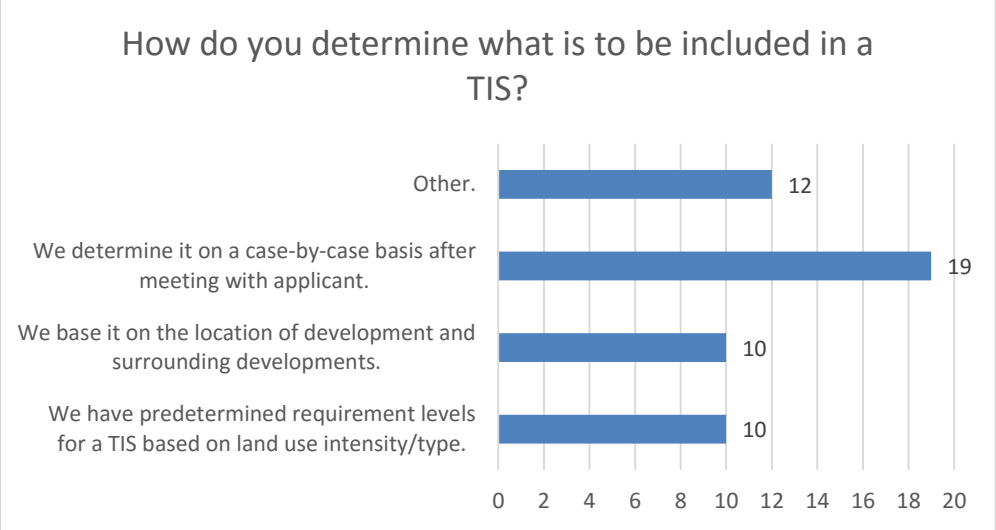
Check all that apply.

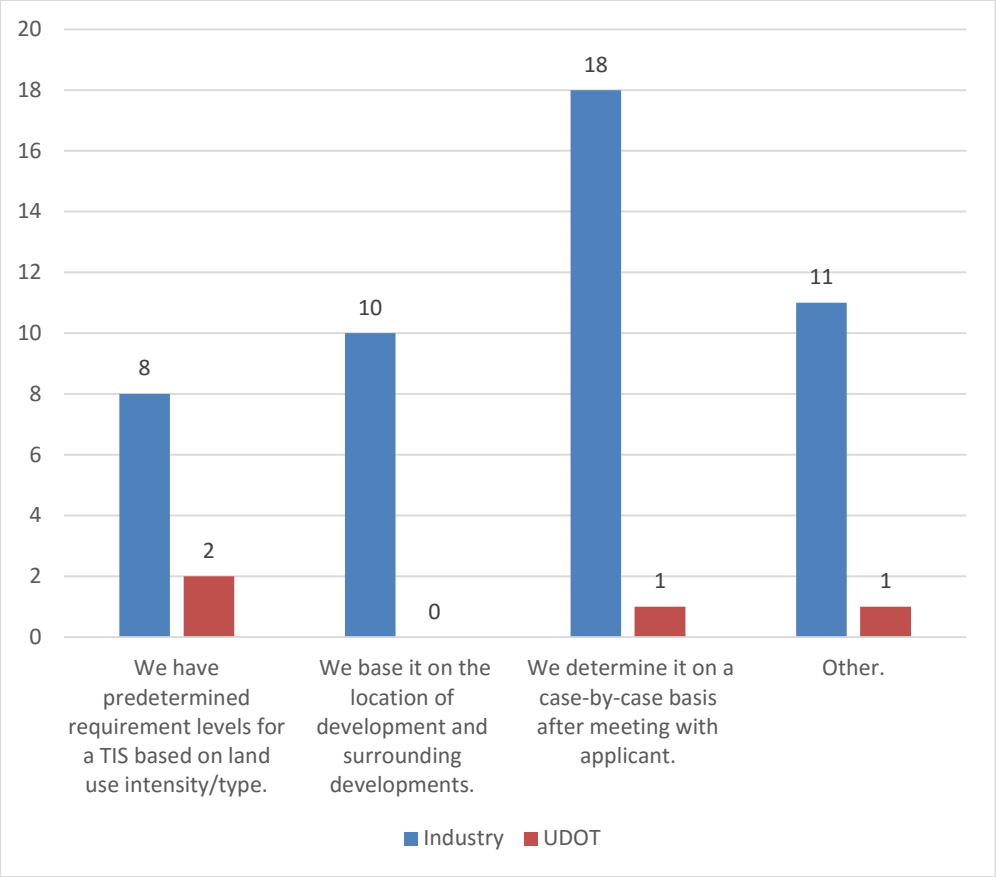




13. How do you determine what is to be included in a TIS (select all that apply)? *

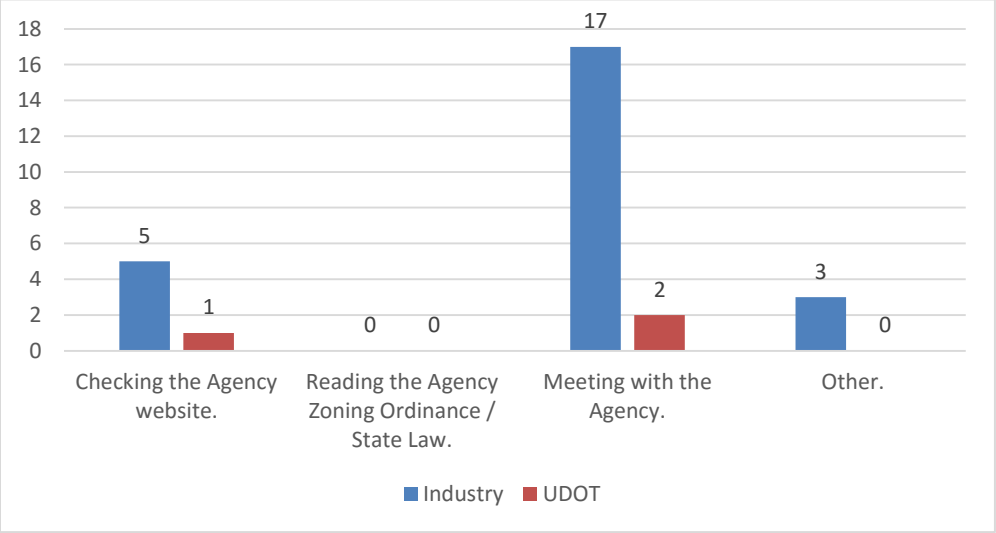
Check all that apply.

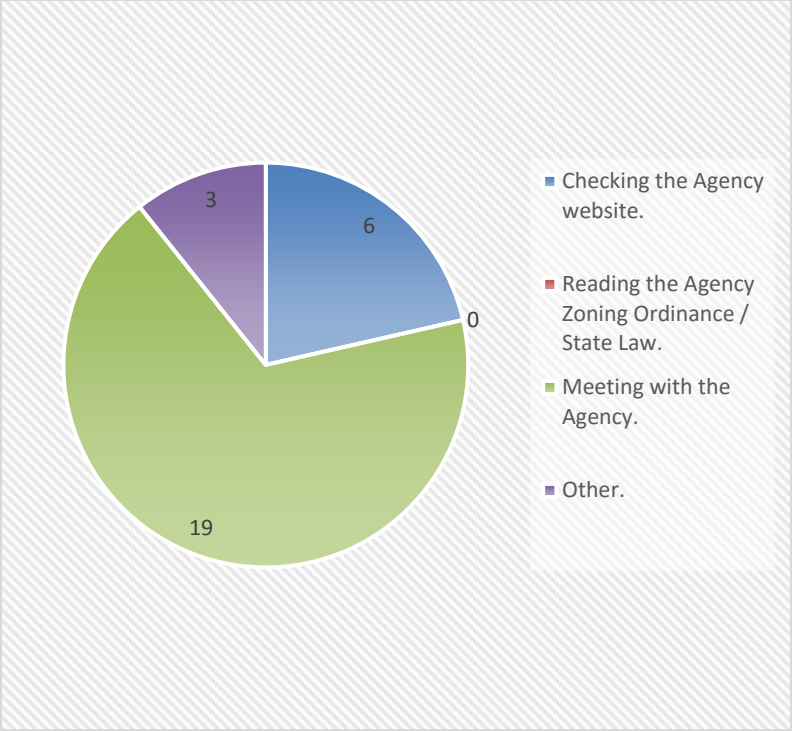




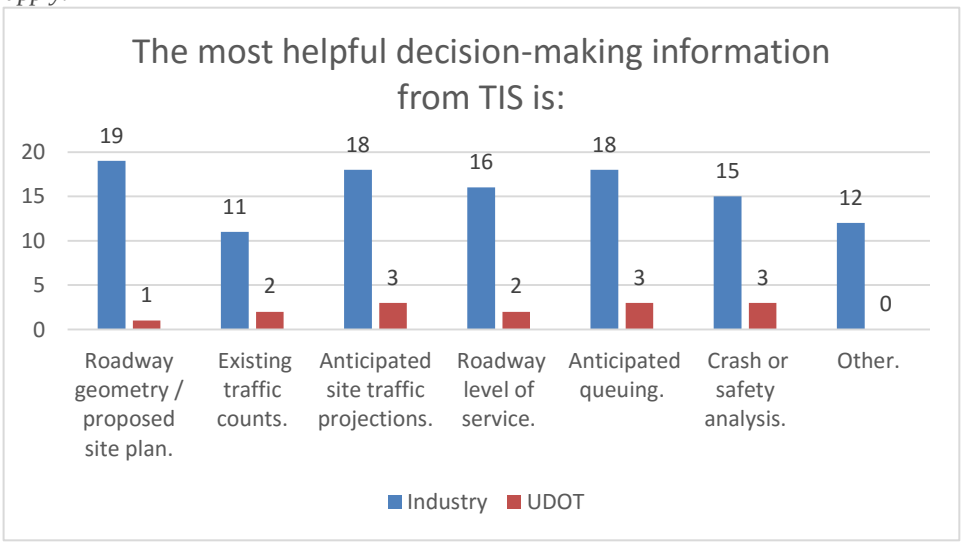
14. The easiest way for developers and engineers to determine what their access requirements are is by: *

Mark only one oval.

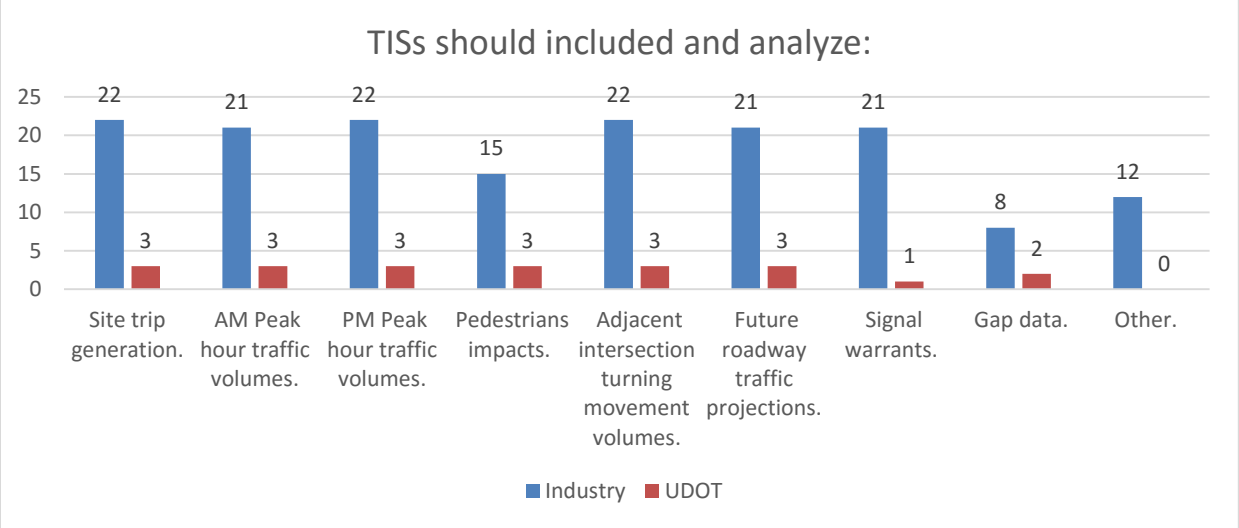




15. The most helpful decision-making information from a TIS is (select all that apply): * *Check all that apply.*

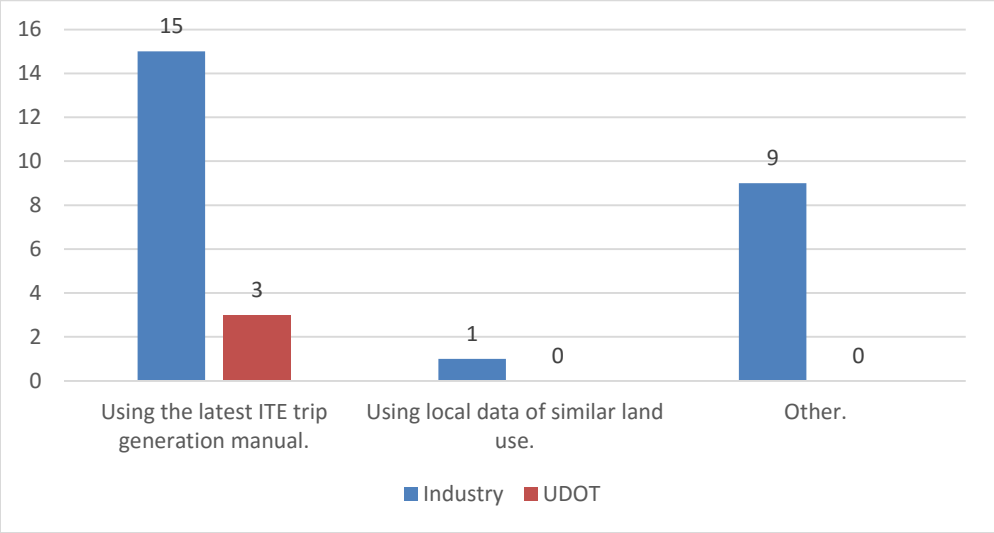


16. TISs should include and analyze (select all that apply): * *Check all that apply.*



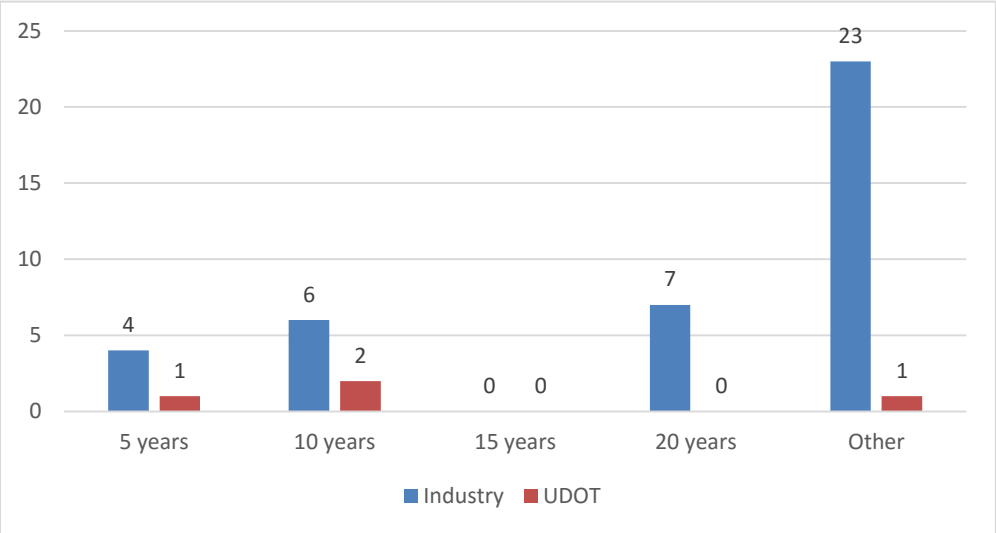
17. How is trip generation to be calculated? *

Mark only one oval.



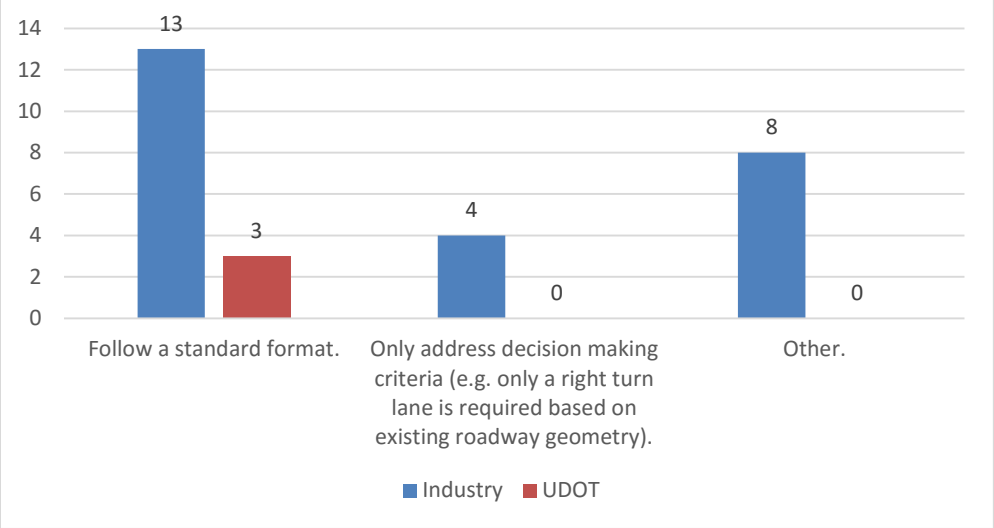
18. What horizon years after opening day are typically required to be analyzed in a TIS (select all that apply): *

Check all that apply.



19. The TIS should: *

Mark only oneoval.



20. Are there any practices which have been implemented that you feel are unique to you? * *Mark only one oval.*

Virginia

I believe that Virginia DOT's access management program is unique in that we have:

1. Reasons for spacing exceptions are set out in regulations (see 24VAC30-73-120)

2. Unique spacing standards set out for multimodal activity centers (see Appendix B(2) of Road Design Manual)

Furthermore, I believe that our traffic impact analysis regulations are unique in that we have:

1. Specified alternative trip generation methodology for urban development areas and transit oriented development (see 24VAC30-155-60 and page 43 of TIA Guidelines)
2. Included pedestrian— and bicycle service– based vehicle trip reduction methodology (see 24VAC30-155-60)

All of our land use related programs and supporting documentation are available off our website, at http://www.vdot.virginia.gov/info/transportation_and_land_use.asp.

CalTrans

The full build concept, nexus, proportionality, equitable share, and providing infrastructure within a reasonable time frame typically within five years after opening several years).

Minnesota

If developments are expected to develop in phases over time (5 - 10 years or more) then the permittee will likely be the Local Public Agency rather than the developer.

West Jordan City, UT

The City has chosen 5 pre-qualified engineering firms that are allowed to do a TIS. If this were not so, the cheapest and not always the best firms would be doing each and every TIS for developers.

21. Do you have any standard documentation that you could provide? * *Mark only one oval.*

Agency:	Do you have any standard documentation that you could provide?
UDOT	No.
Utah DOT	No.
Iowa Department of Transportation	Yes, please contact me.
Virginia Department of Transportation	Yes, please contact me.
New Hampshire DOT, Bureau of Traffic	Yes, please contact me.

UDOT	Yes, please contact me.
LADOTD	No.
Maryland Department of Transportation State Highway Administration	Yes, please contact me.
NDOT	Yes, please contact me.
Caltrans	No.
MDOT	Yes, please contact me.
Illinois Department of Transportation	No.
West Jordan City	Yes, please contact me.
Oregon Department of Transportation	Yes, please contact me.
British Columbia, Ministry of Transportation and Infrastructure	Yes, please contact me.
Vermont Agency of Transportation	No.
NMDOT - District 6	Yes, please contact me.
City of Orem	No.
California Department of Transportation	No.
Nova Scotia Department of Transportation and Infrastructure Renewal	Yes, please contact me.
Montana Dept of Transportation	No.
TxDOT	No.
New Mexico Department of Transportation	Yes, please contact me.
Ohio Department of Transportation	No.
WisDOT	No.
WisDOT	No.
TDOT	No.
Florida Department of Transportation	Yes, please contact me.

APPENDIX D: UDOT Access Permit Database

UDOT provided data from the UDOT Access Permit Database from 1/14/2014 to 03/29/2017. An example of the data is included in this appendix. A summary of the analysis conducted on this data is also included.

D.1 Access Permit Database Data

During the three years of data analyzed, over 1,000 applications were found in the permit database. A lot of information was included in the data, including the date the application was began, the purpose of the application, and the state roadway the development is on. Several examples of the dataset provided by UDOT is shown in this section. Note that all fields provided in the dataset are shown, even though they may have been left blank.

Table D.1: Access Permit Database Example, Part A

APPLICATION ID	PERMIT NUMBER	APPLICATION DATE	TIS	APP_TYPE	CUSTOMER NAME
77581		5/23/2017		ACCESS	Great Basin Engineering
77551		5/22/2017		ACCESS	Northern Engineering
77543		5/19/2017		ACCESS	Midland Enterprises LLC
77530		5/19/2017		ACCESS	Keller

Table D.2: Access Permit Database Example, Part B

APPLICATION ID	PURPOSE	PHYSICAL ADDRESS
77581	Improvement of existing access.	317 South State Street
77551	Proposed commercial access for the Mapleton Whiting Commercial site. Two access points off the east side of SR 89 and a third access point off the North side of SR 147.	1400 South 1600 West
77543	The existing drive approach to the property on Redwood Road is to be closed and the property is to be accessed from 2700 South Street, a West Valley City street.	2665 South Redwood Road
77530	Proposing to build a single family home in Hyrum off Hwy 165. Need access for a driveway. Neighbor has refused permission to use his access.	360 South 800 East

Table D.3: Access Permit Database Example, Part C

APPLICATION ID	ESTIMATED BEGIN DATE	ESTIMATED END DATE	COMMENTS	CURRENT STATUS	STATUS DATE	ROUTE
77581	5/23/2017	5/23/2017		Completeness Review	5/23/2017	SR-66
77551	5/22/2017	5/22/2017		New Application	5/22/2017	US-89
77543	5/19/2017	5/19/2017		Project Under Review	5/23/2017	SR-68
77530	5/19/2017	5/19/2017		New Application	5/19/2017	SR-165

Table D.4: Access Permit Database Example, Part D

APPLICATION ID	CITY	COUNTY	DIREC-TION	BEGIN POST	END POST	DD LATI	DD LONG	PAVEMENT TYPE	END POST
77581	MORGAN	MORGAN		12.29					
77551	MAPLETON	UTAH							
77543	WEST VALLEY CITY	SALT LAKE							
77530	HYRUM	CACHE							

D.2 Analysis Summary

During the three years of data analyzed, over 1,000 applications were analyzed several ways and are summarized here.

KEY FINDINGS

- Statewide
    - Level 1
        - Number of applications: 117
        - Submitted a TIS: 21
    - Level 2
        - Number of applications: 189
        - Submitted a TIS: 107
    - Inconsistencies were found between Regions
- Application Duration
    - Duration for “Permit Issued” status:

        - Average: 58 days
        - Maximum: 376
        - Minimum: 0
        - Number of applications: 276
    - Currently, tracked duration combines UDOT and customer days together
    - UDOT's 45-day timeline for applications does not include customer days
        - More is being done to separate the UDOT days from the customer days
- Region and Years
    - 2017 only includes 3 months of data
    - Number of applications per region per year are similar between 2015 & 2016
        - 2014 sees lowest numbers
    - Number of TISs submitted per region per year are also similar between 2015 & 2016
        - 2014 sees lowest numbers
- Majority of applications are issued
    - A few were terminated
- Pre-Application meetings
    - Occurrences not fully tracked
    - Available data has validation concerns
- Little data found on waived TISs
    - 16 applications specified
    - Several were waived for single-family homes

GENERAL NUMBERS

Table D.5 shows a summary of all the Level 1 and 2 access permit applications from 1/14/2014 to 03/29/2017, which were received from the database. The '% of Apps' column shows the percentage of applications for that region were Level 1 or 2, as well as the total applications that were from that region. There seems to be generally more Level 2 applications than Level 1 applications. Most of Level 1 and 2 applications are received from Region 2 at123 applications which is 40% of all applications, followed by Region 3 with 94 applications which is 31% of all applications.

All the regions had a high rate of permits issued for the applications, except for Region 1, which only had 70% of their Level 1 applications accepted and 78% of their Level 2 applications accepted. Region 1 and 3 had the most variances requested with their permit applications. Region 1 had 80% of the Level 1 applications and 97% of the Level 2 applications submit a TIS, but still having a lower rate of permit

issued. This is may be an example of the inconsistencies between the way Regions handle permit applications.

The number of applications by year is shown on the far right, with most of the sample data coming from 2015-
16. Overall, there are more Level 2 applications submitted, with the 96% and 87% having a permit issued.

Table D.5: Dataset Summary Table

Region	Level	% of Apps	% Permit Issued	% Requested Variance	% Submitted TIS	Application Year			
						2017	2016	2015	2014
Region 1	1	15%	70%	20%	80%	1	2	5	2
	2	85%	78%	52%	97%	8	15	24	11
	1 & 2	68	52	32	64	9	17	29	13
Region 2	1	51%	100%	3%	13%	4	21	25	13
	2	49%	85%	8%	58%	7	23	20	10
	1 & 2	123	114	7	43	11	44	45	23
Region 3	1	36%	97%	32%	12%	4	9	21	-
	2	64%	98%	30%	23%	7	24	23	6
	1 & 2	94	92	29	18	11	33	44	6
Region 4	1	48%	90%	0%	10%	-	8	1	1
	2	52%	82%	0%	18%	1	9	1	-
	1 & 2	21	18	-	3	1	17	2	1
Total	1	38%	96%	13%	18%	9	40	52	16
	2	62%	87%	28%	57%	23	71	68	27
	1 & 2	306	276	68	128	32	111	120	43

STATEWIDE

Figure D.1 and D.2 show access applications where a TIS was submitted for all regions in the state. Figure D.1 shows that 82 percent of the Level 1 applications did not need to submit a TIS. Figure D.2 shows that 57 percent of the Level 2 applications submitted a TIS. Figure D.3 divides all access applications by access type. The percentage of applications with a blank field under access type is quite large at 24 percent. These applications do not seem to be isolated to a single region or year, however more occur in 2015 that the other years and more occur in region 2 than the other regions.

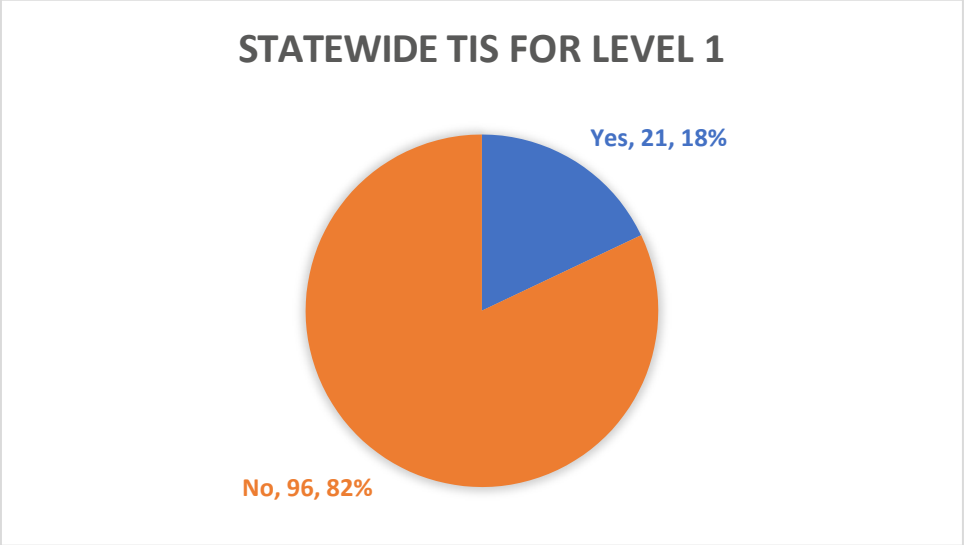


Figure D.1: Whether a TIS was submitted for Level 1 applications in all regions.

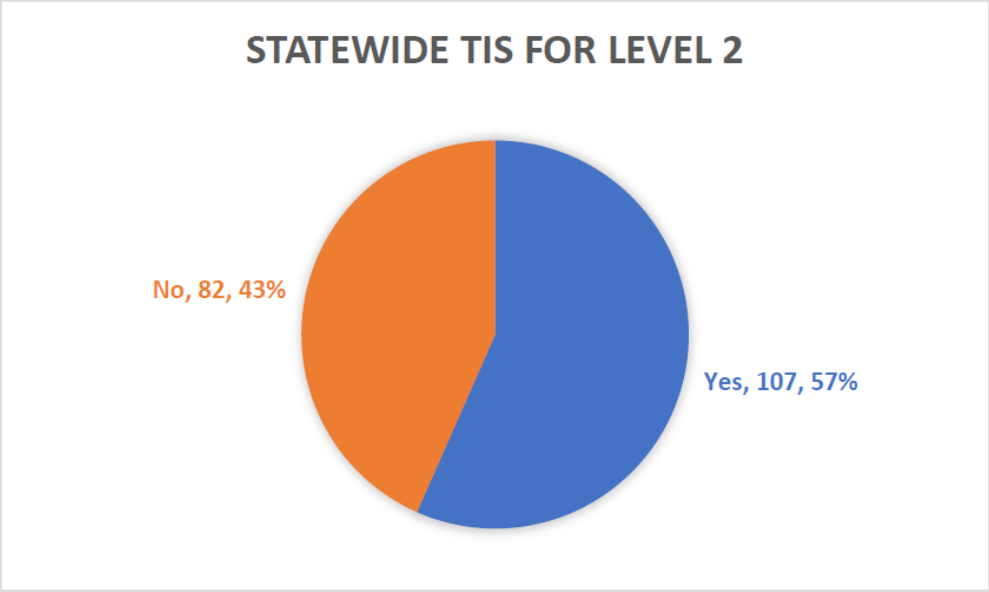


Figure D.2: Whether a TIS was submitted for Level 2 applications in all regions.

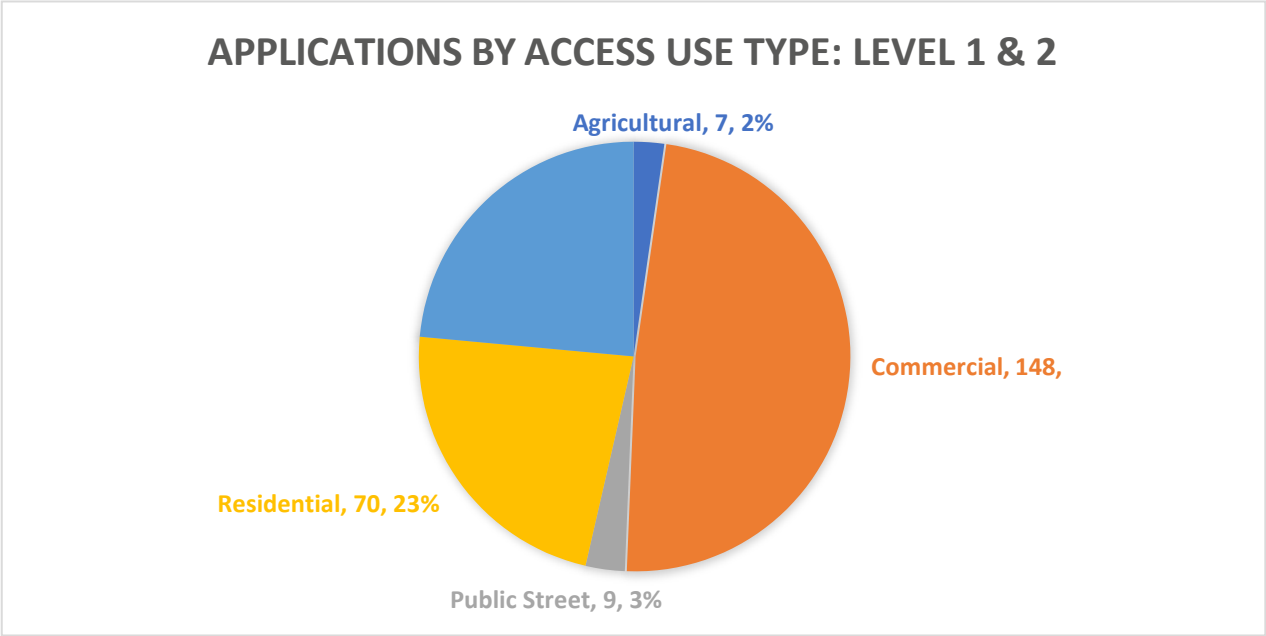


Figure D.3: Breakdown of Level 1 and 2 applications by access use type for all regions.

DURATION & CURRENT STATUS

Figure D.4 shows the duration in days and the number of applications for each status for all Level 1 and 2 applications. The duration includes UDOT days and customer days and is calculated from the date the application was submitted, to the last status update. UDOT days are the days when the application is under UDOT review while customer days are the days the customer needs to make modifications to the application. As shown, most statuses have a very small number of applications and the majority were issued. Since the durations shown in Figure D.4 are high, however, more analysis is being completed looking solely at UDOT days to get a more accurate representation of the duration UDOT spends on applications. Figure D.5 and D.6 show the number of applications by region under each application status. Few applications were terminated or denied and the majority were issued.

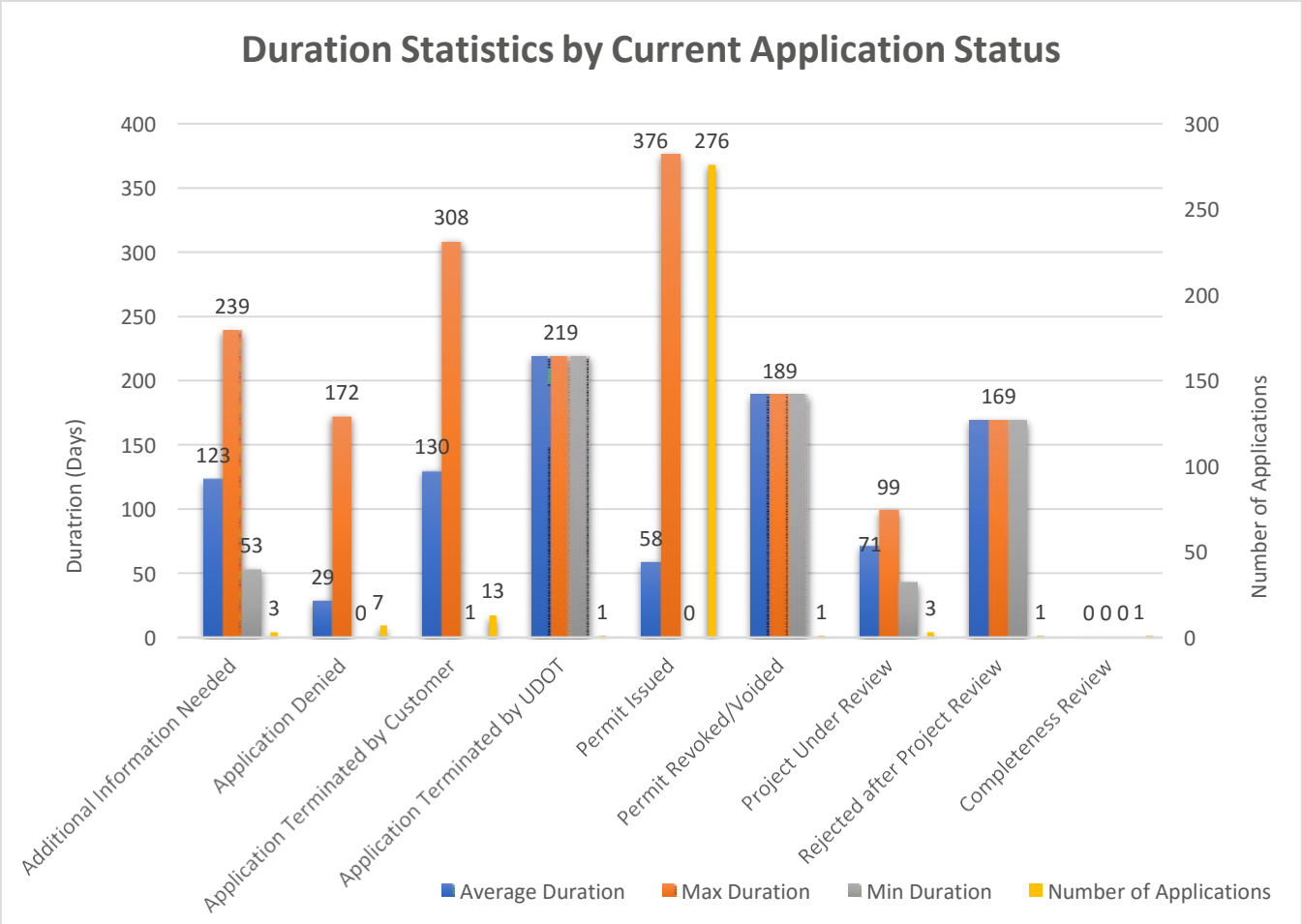


Figure D.4: Duration in days from the application submittal date to the current status date for all regions including both UDOT and customer days.

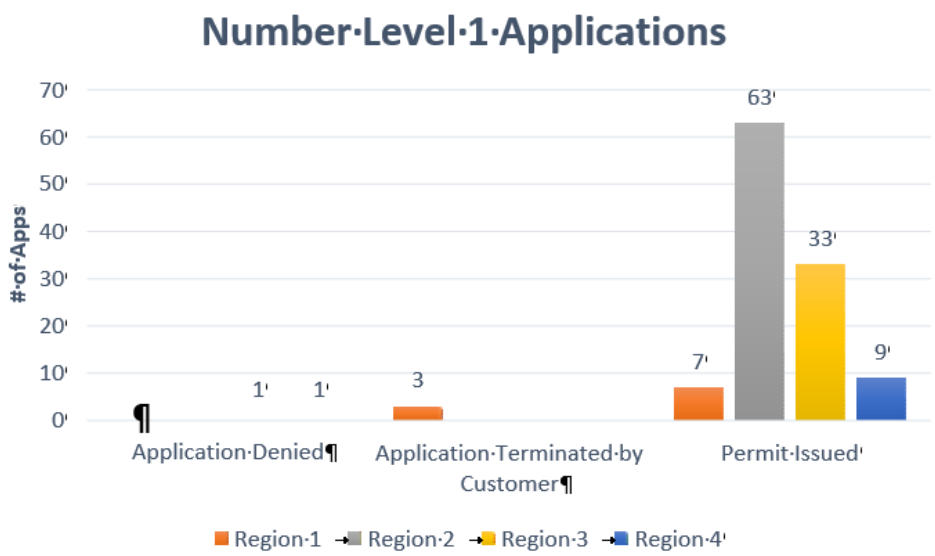


Figure D.5: Number of Level 1 applications by current status.

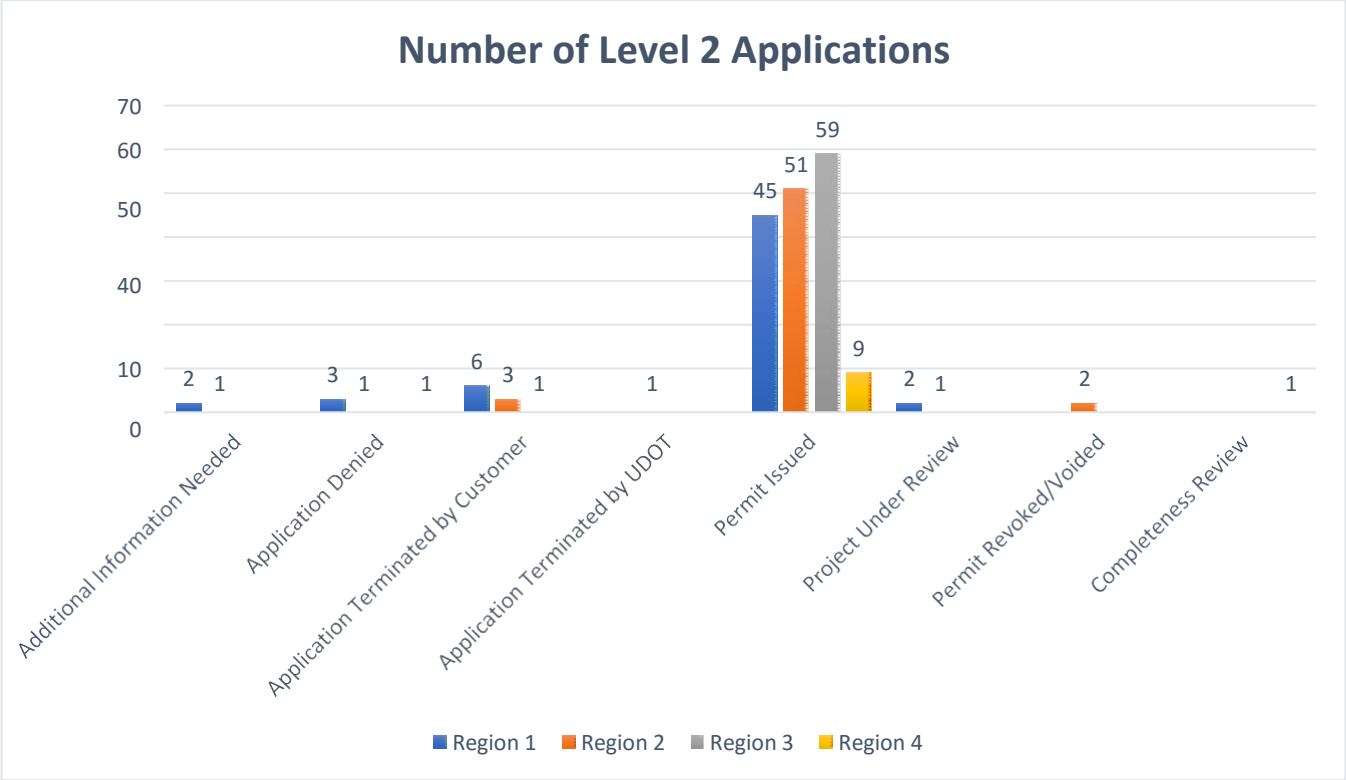


Figure D.6: Number of Level 2 applications by current status.

REGIONS

Figure D.7 shows all of the Level 1 and 2 applications where a TIS was submitted, broken into regions. Regions 1 and 2 have the highest amount of TISs submitted while Region 3 and 4 have lower TIS submission numbers. Figure D.8 shows a similar graph but includes the number of applications that did not submit a TIS. It is shown that Regions 2 and 3 have the most Level 1 and 2 applications that did not submit a TIS.

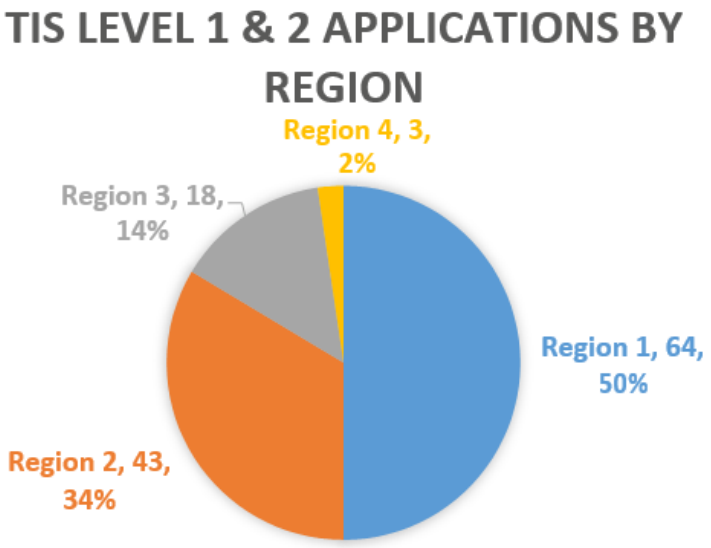


Figure D.7: Permit applications with a TIS by Region.

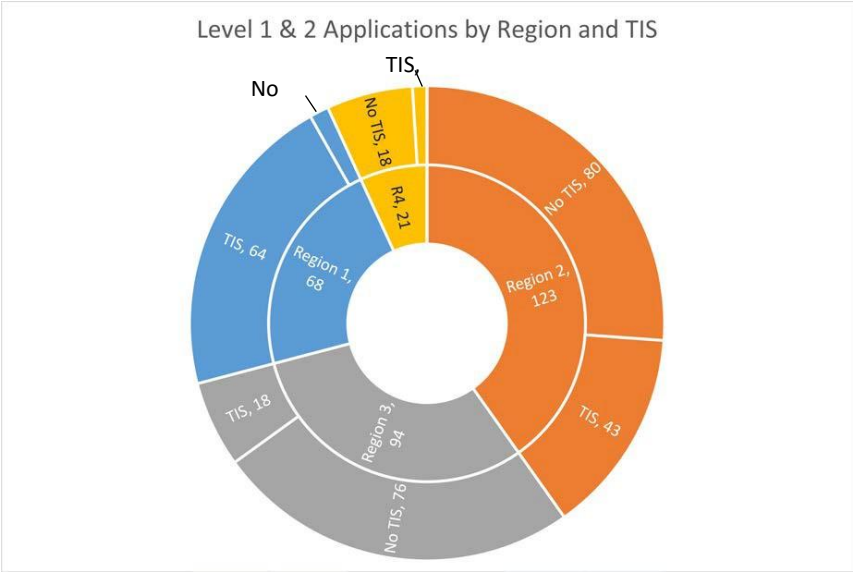


Figure D.8: Number of applications with and without a TIS by Region.

REGION AND YEAR

Since we have three years of data and accuracy has improved over the years, the number of applications and TISs submitted were broken into years. Table D.6 and Figure D.9 show how the number of applications submitted has changed over the years. Little changes can be seen, though the general trend is that 2014 has the lowest values and 2015 has the highest number applications submitted. Note that 2017 only includes 3 months of data and cannot be counted as a full year. Table D.7 and Figure D.10 shows the number of TISs submitted over the years. Small changes can be seen and similar trends from Table D.6 and Figure D.9 can be seen.

Table D.6: Applications by Region and Year

Region	Level	# of Apps	% of Apps	Application Year			
				2017*	2016	2015	2014
Region 1	1	10	3%	1	2	5	2
	2	58	19%	8	15	24	11
Region 2	1	63	21%	4	21	25	13
	2	60	20%	7	23	20	10
Region 3	1	34	11%	4	9	21	0
	2	60	20%	7	24	23	6
Region 4	1	10	3%	0	8	1	1
	2	11	4%	1	9	1	0
Total	1	306	100%	43	120	111	32

*Note: Data represents only the first three months of 2017.

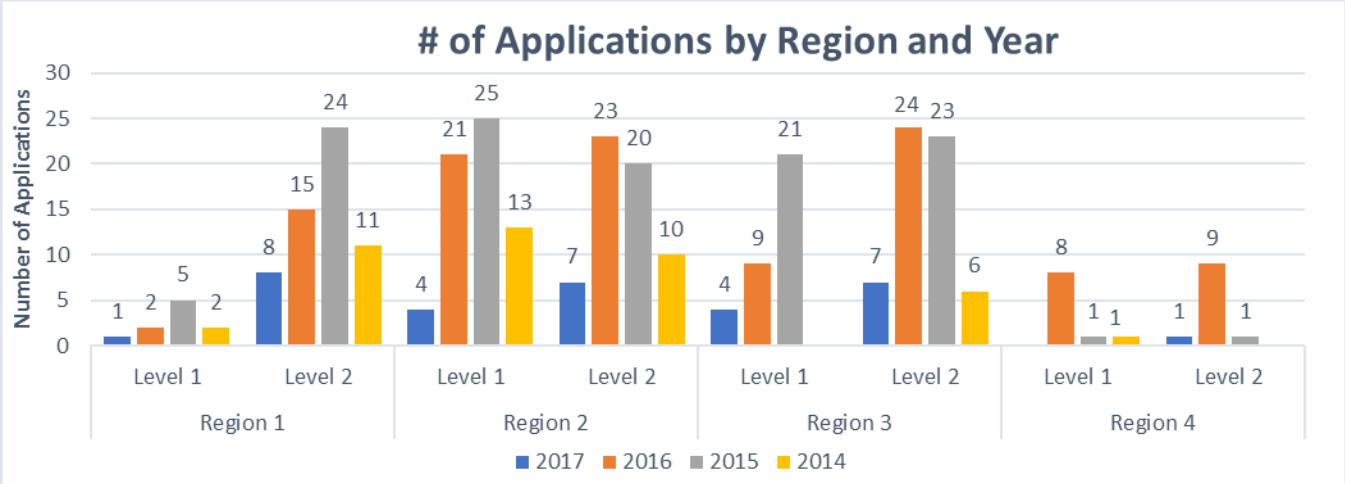


Figure D.9: Number of applications by region and year.

Table D.7: Number of TISs by Region and Year

Region	Level	# of TIS	% of TIS	Application Year			
				2017*	2016	2015	2014
Region 1	1	8	6%	0	2	5	1
	2	56	44%	8	15	24	9
Region 2	1	8	6%	0	3	4	1
	2	35	27%	4	13	12	6
Region 3	1	4	3%	0	1	3	0
	2	14	11%	0	4	7	3
Region 4	1	1	1%	0	1	0	0
	2	2	2%	0	2	0	0
Total	1	128	100%	12	41	55	20
*Note: Data represents only the first three months of 2017.							

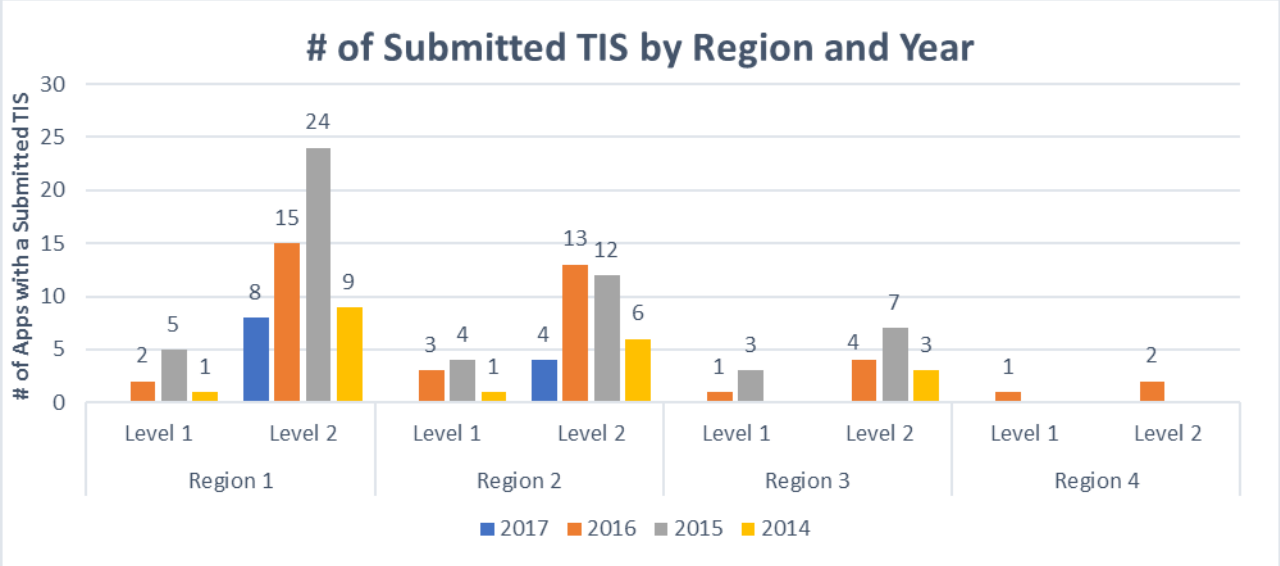


Figure D.10: Number of submitted TISs by region and year.

TERMINATED/WAIVED

Though most of the permit applications were issued, as shown in Figure D.11, there were a few applications that were terminated by the customer and UDOT. There was a question as to why these applications were terminated and it was found that some reasons for termination were as follows:

- Terminated by UDOT: closed due to no communication
- Terminated by Customer: project on hold, asked to close it, waiting for more info, inactivity, closed application but can resubmit with no charge

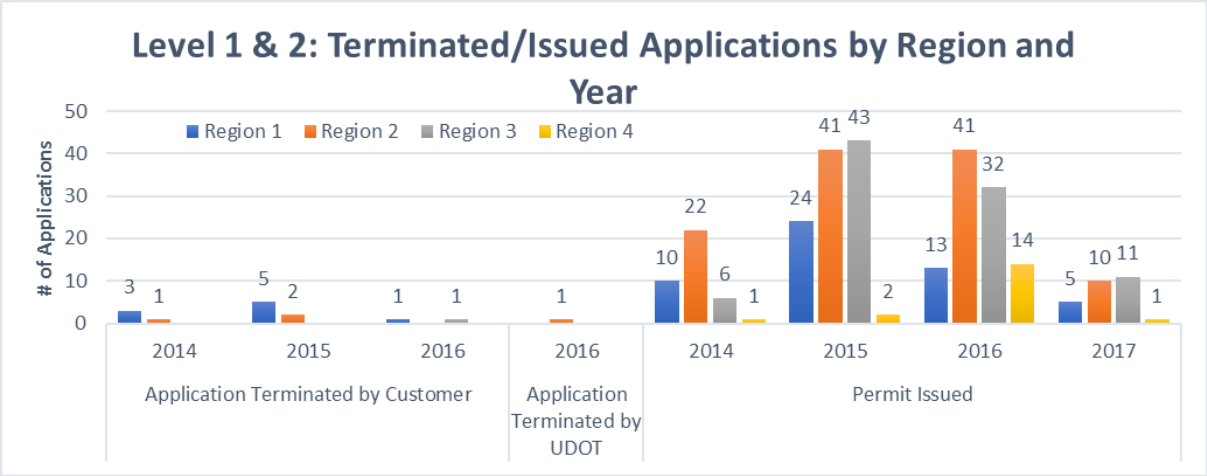


Figure D.11: Terminated/Issued applications by region and year.

There was also a question as to how many applications had a TIS waived but little data was found on that. Only 16 applications specifically note that the TIS was waived. Six of those applications were for single residence homes, while the others had no reason outlined. No information could be found on the other applications where a TIS was not conducted about whether the TIS was waived or not.

APPENDIX E: Access Permit TIS Form Guideline

This appendix includes the guideline document created for the Access Permit TIS Form. This document walks the user through the tool, outlines tool questions, and identifies useful information to help the user use the tool.

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1. Introduction

This memorandum outlines the guidance and support documentation for the use of the Access Permit Traffic Impact Study (TIS) Form (the Form). The Form was developed to assist the Utah Department of Transportation (UDOT) and access permit applicants in determining if a TIS may be waived for an access permit or what specific information is needed in a TIS when it's required.

2. Background

UDOT's Access Management Program maintains a safe and efficient highway system by regulating the number, size, location, and use of access points. This is done to help reduce crashes, traffic congestion, transportation costs, and improve air quality. To manage access points, UDOT requires that any changes or additions to a driveway, curb cut or local street connection on state highways be requested and approved through the Conditional Access Permit process. The Utah Administrative Rule R930-6 houses a full description of the types of changes or additions that may be made to an access. Before an application can be approved, a pre-application meeting must be held with UDOT personnel. This meeting will determine the feasibility of the proposed access(s) and application requirements.

A TIS is among the list of access application requirements. The purpose of a TIS is to identify the impacts associated with the proposed connection(s) of the development to the transportation system. As outlined in the UDOT Traffic Impact Study Guidelines document, there are four TIS levels which vary depending on the size and intensity of the development. In certain circumstances, with appropriate justifications, UDOT may waive TIS requirements at its own discretion. Reasons to waive a TIS may include the development has little to no impact on the roadway or the impacts can be easily mitigated. The Access Permit TIS Form is meant to gather data for the proposed development and state roadway to assist developers and UDOT to quickly determine whether a TIS is needed. It is important to note that UDOT personnel have

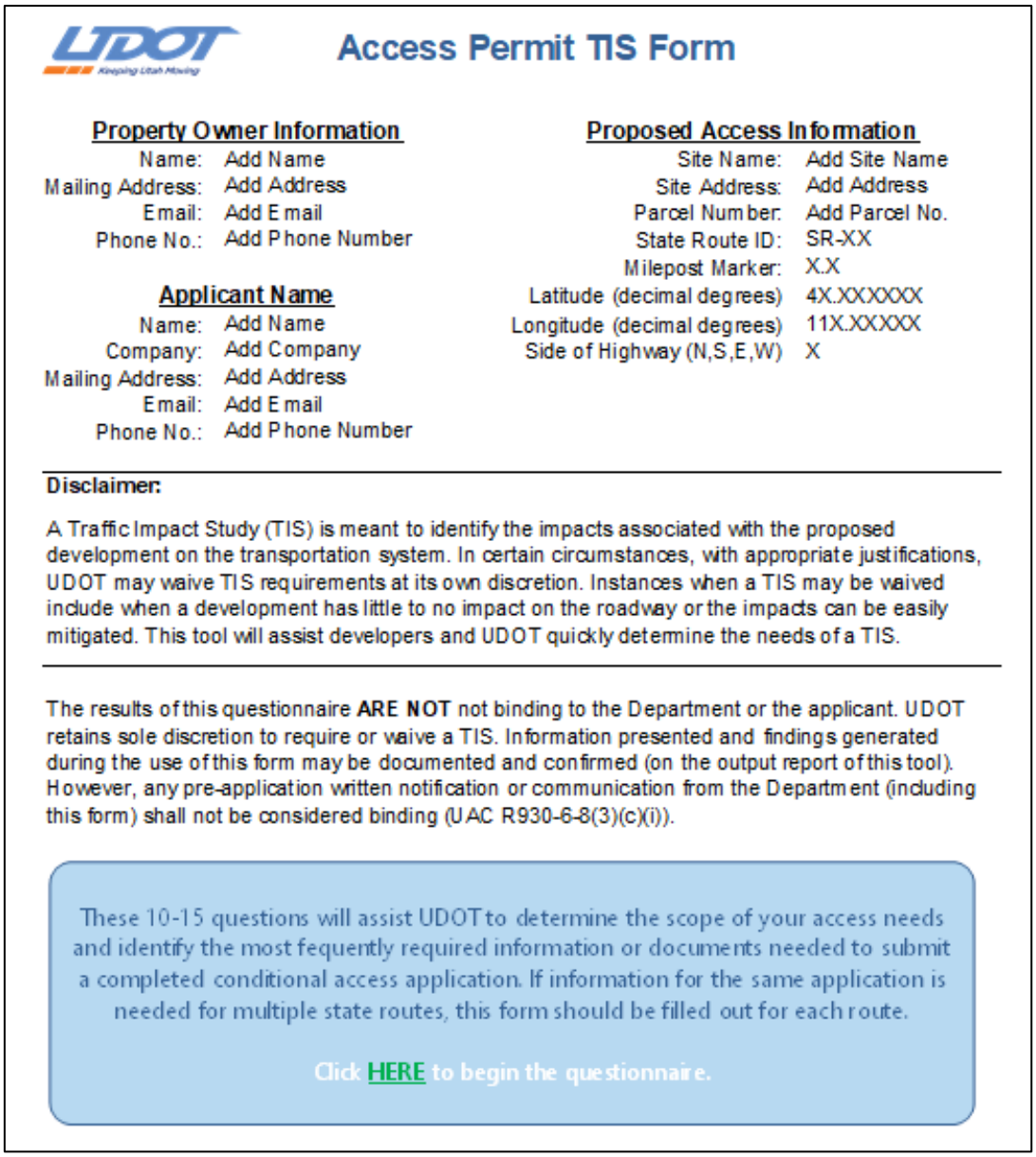
sole discretion to require or waive a TIS, and that the information the applicant provides in the form are not binding.

3. Form Instructions

The Access Permit TIS Form interface is designed with help features for an applicant to complete on their own, but may also be used during the pre-application meeting itself. If information is needed on multiple routes for the same application, the Form should be filled out separately for each route.

3.1 Home Page with Basic Project Information

The home page, shown in Figure 1, provides a place for the applicant to input the basic project information. Also included on this page is a brief disclaimer specifying that UDOT retains sole discretion to waive a TIS regardless of the recommendations of this form and the answers received from the applicant are not binding.



Access Permit TIS Form

Property Owner Information

Name: Add Name
Mailing Address: Add Address
Email: Add Email
Phone No.: Add Phone Number

Applicant Name

Name: Add Name
Company: Add Company
Mailing Address: Add Address
Email: Add Email
Phone No.: Add Phone Number

Proposed Access Information

Site Name: Add Site Name
Site Address: Add Address
Parcel Number: Add Parcel No.
State Route ID: SR-XX
Milepost Marker: X.X
Latitude (decimal degrees) 4X.XXXXXX
Longitude (decimal degrees) 11X.XXXXX
Side of Highway (N,S,E,W) X

Disclaimer:

A Traffic Impact Study (TIS) is meant to identify the impacts associated with the proposed development on the transportation system. In certain circumstances, with appropriate justifications, UDOT may waive TIS requirements at its own discretion. Instances when a TIS may be waived include when a development has little to no impact on the roadway or the impacts can be easily mitigated. This tool will assist developers and UDOT quickly determine the needs of a TIS.

The results of this questionnaire **ARE NOT** not binding to the Department or the applicant. UDOT retains sole discretion to require or waive a TIS. Information presented and findings generated during the use of this form may be documented and confirmed (on the output report of this tool). However, any pre-application written notification or communication from the Department (including this form) shall not be considered binding (UAC R930-6-8(3)(c)(i)).

These 10-15 questions will assist UDOT to determine the scope of your access needs and identify the most fequently required information or documents needed to submit a completed conditional access application. If information for the same application is needed for multiple state routes, this form should be filled out for each route.

Click HERE to begin the questionnaire.

Figure 1: Home Page - Basic Project Information

3.2 Primary Data Page

An access application is required whenever a new driveway, other curb cut, or local street connection is sought on a state highway, or when an applicant is altering the land use or intensity of an existing access. The Primary Data Page (shown in Figure 2) includes 3 site-specific conditions requiring an access application as sited in section R930-6 of the Utah Administrative

Code. These conditions include: (1) anticipated changes in the land use, (2) anticipated changes to the site plan, and (3) the occupancy status of the property over the last 12 months. For properties that may be undeveloped, where the occupancy status is not applicable, "no" should be selected for condition three.

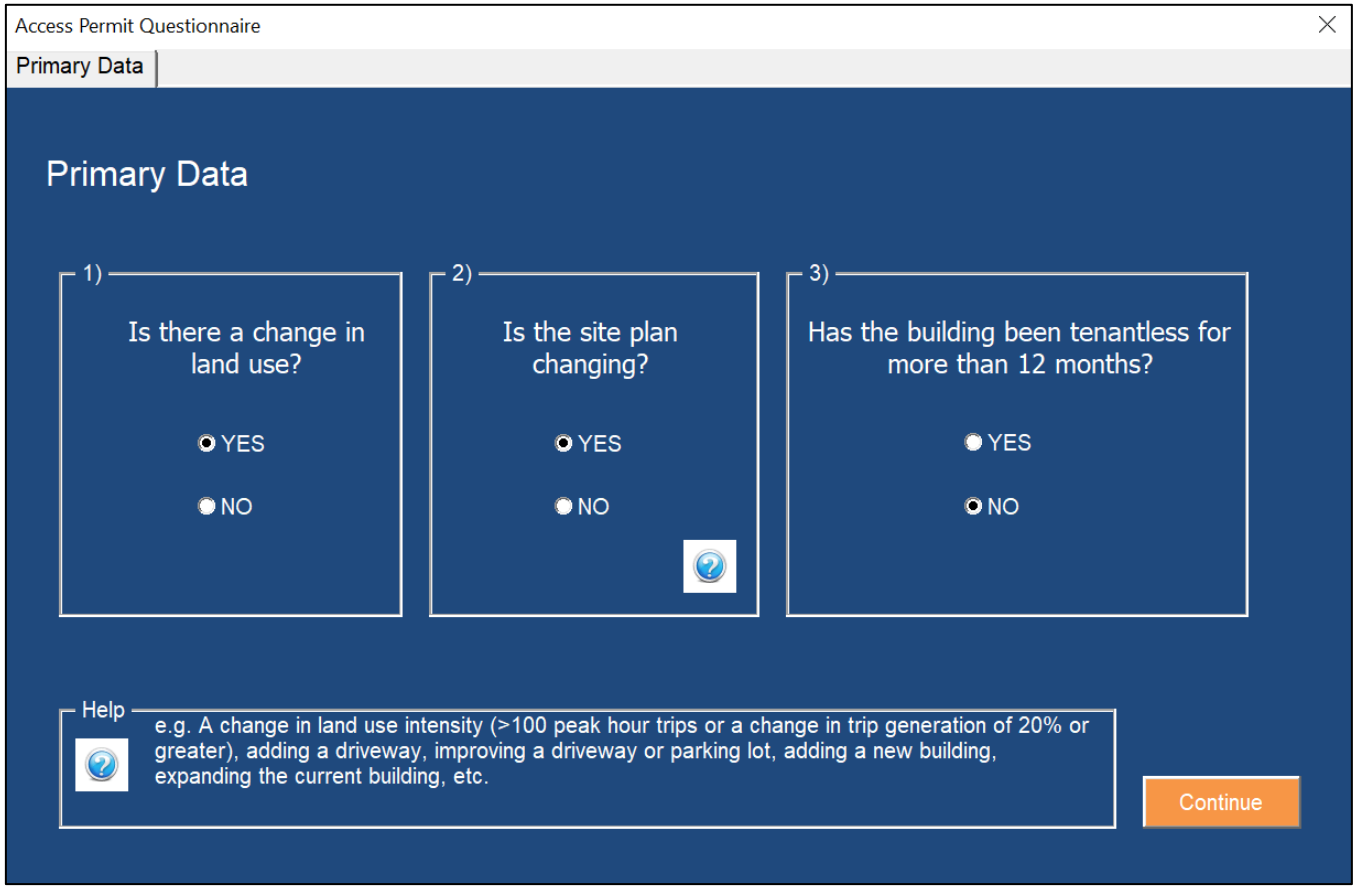


Figure 2: Primary Data Page

Also included on this sheet are helps or tips which appear when selected to assist the applicant in completing the form. Additionally, selecting "yes" to a change in land use, site plan, or the occupancy over the last 12 months will require answers to additional questions pertaining to each of these conditions.

3.3 Site Data Page

The Site Data page (shown in Figure 3) requires project-specific information for land use change, site data (i.e. project intensity), and roadway access category (AC). The inputs for this

page will approximate the land use intensity and other constraints pertaining to the AC of the roadway.

Note that multiple land uses may be selected if applicable to the development. Separate peak hour trips will be calculated for each land use selected.

After the Land Use question is completed and the submit button is pressed, the Site Information question for the first land use selected will appear (shown in Figure 4). After the user fills out the intensity for that land use and the submit button is pressed, the question will change to the next selected land use (shown in Figure 5). When all land use intensities have been entered, the Access Category question will appear (shown in Figure E.6). As land use intensity values are input, they will appear below the land use intensity question. Note that only four land use values can be shown, if more land uses are selected the input values will not appear on this screen but will be included in the output report.

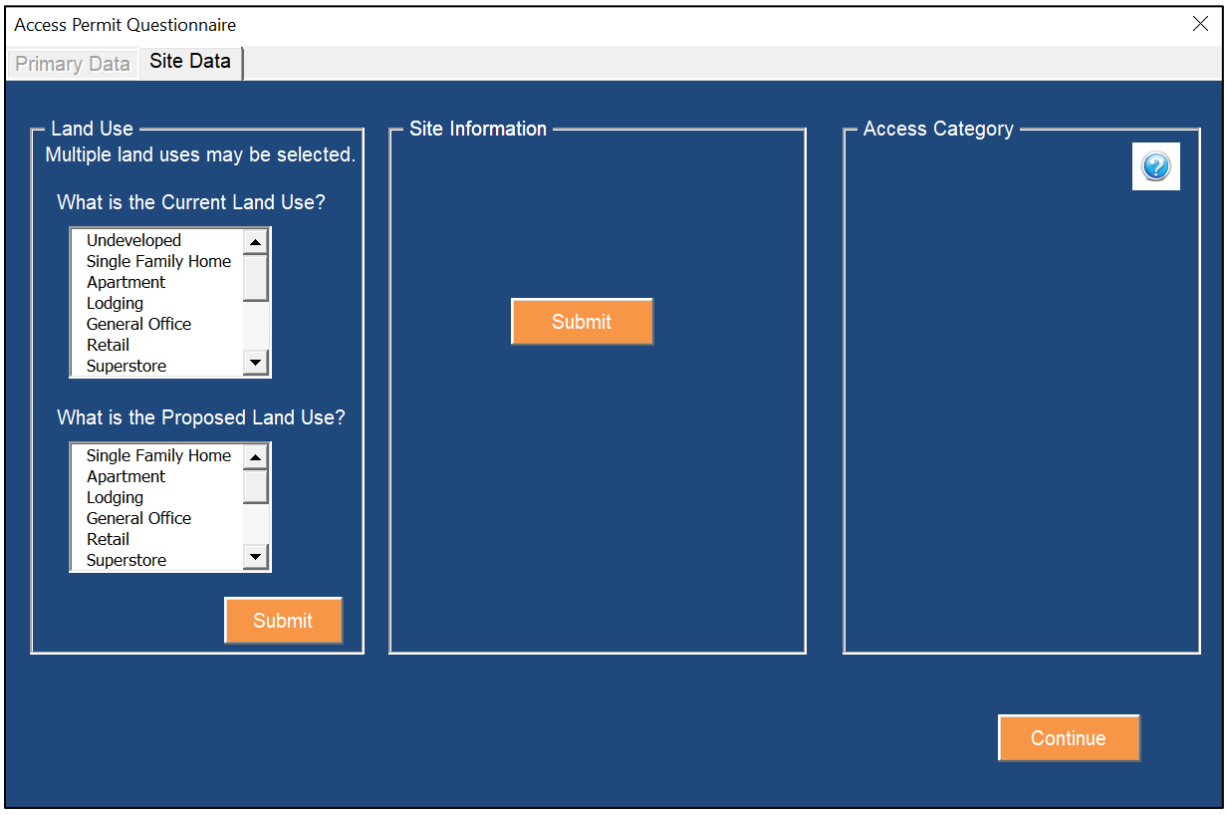


Figure 3: Site Data Page

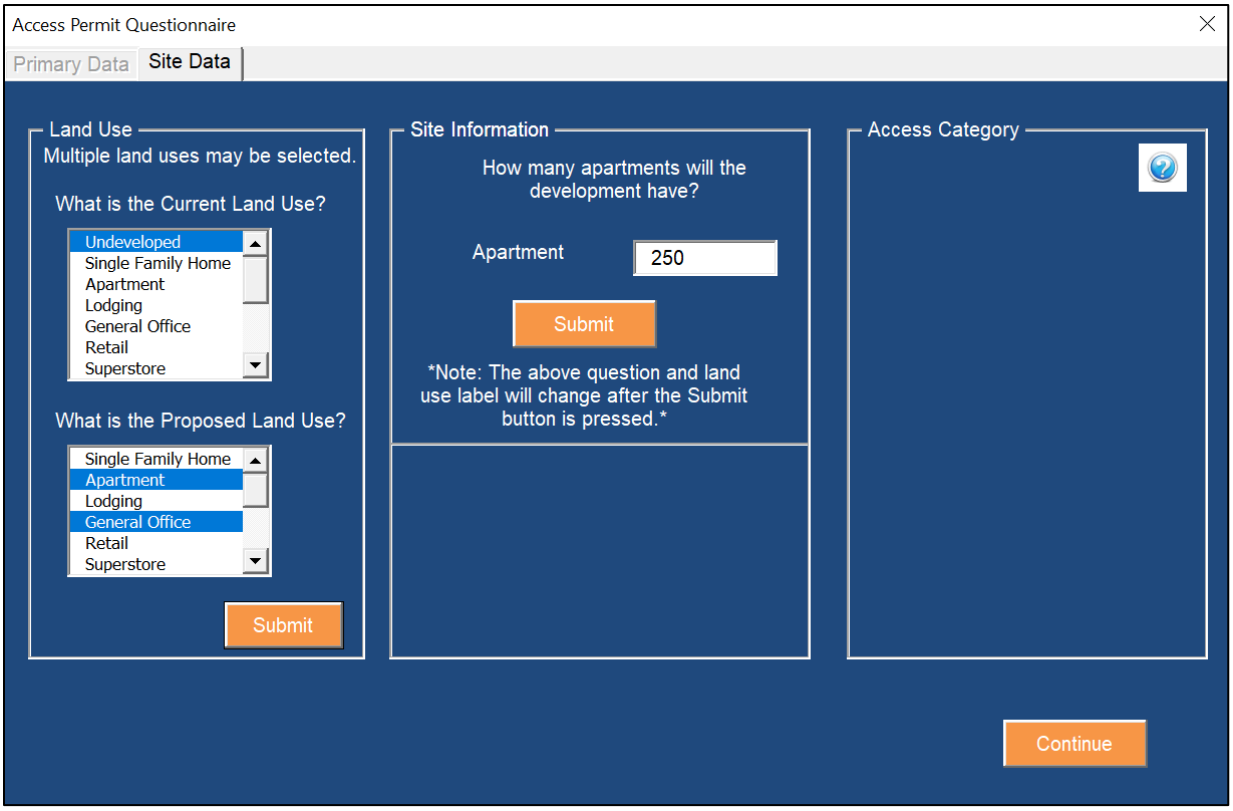


Figure 4: Site Data for the First Proposed Land Use that is Selected

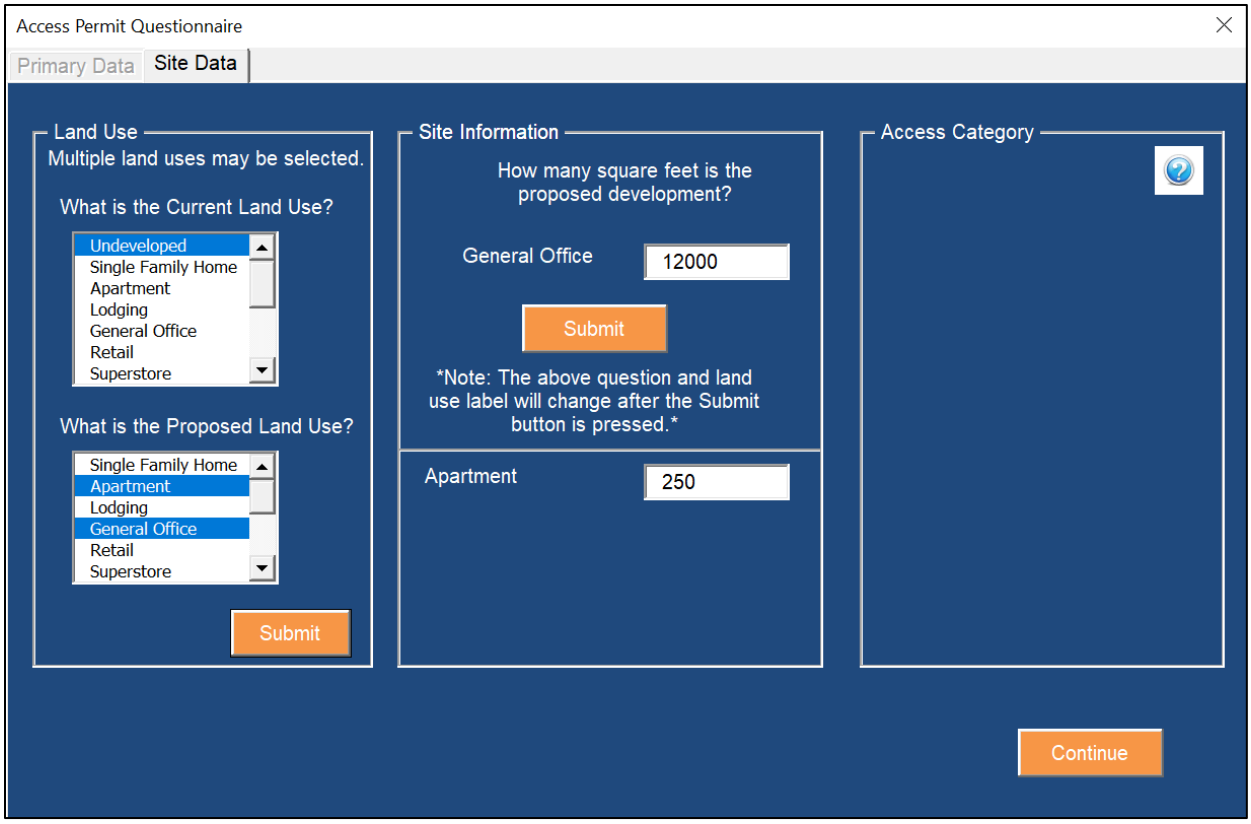


Figure 5: Site Data for the Next Proposed Land Use that is Selected

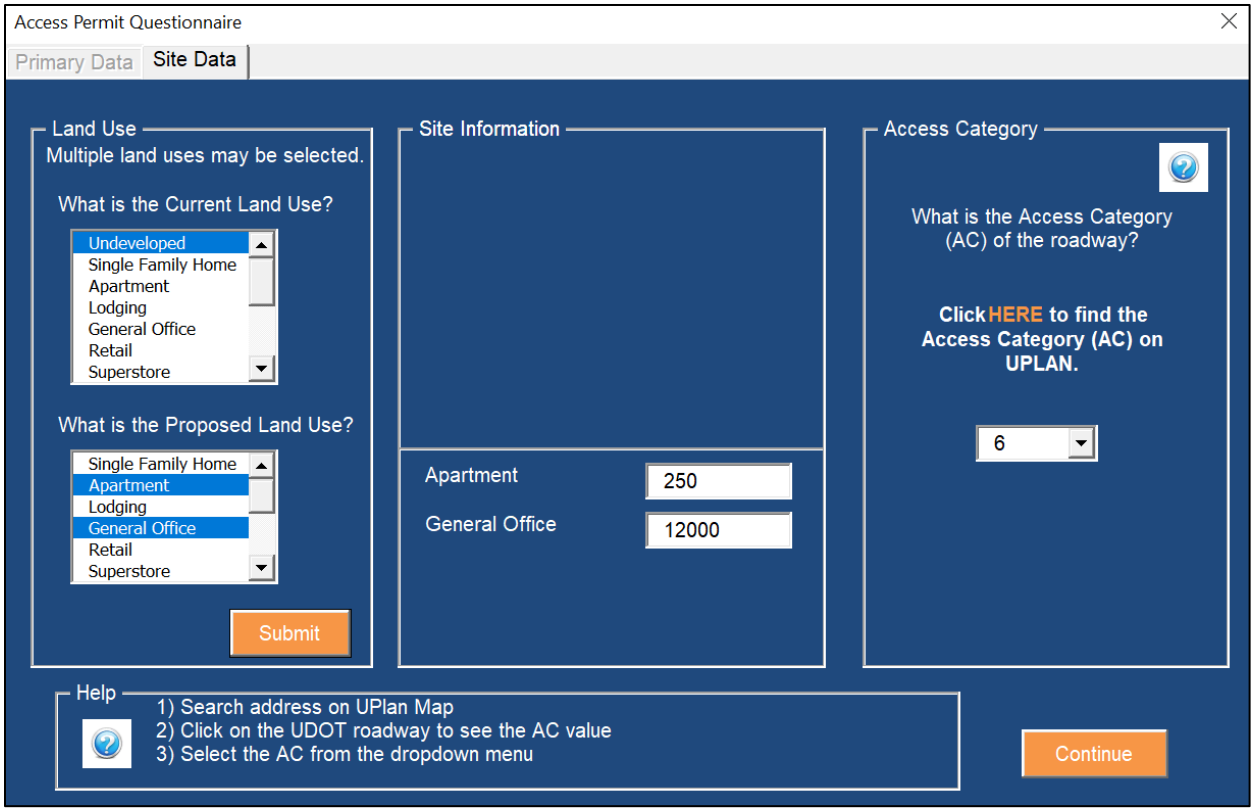


Figure 6: Site Data Access Category Question

An active hyperlink to UPLAN is included to determine the roadway AC. The "Help" section provides additional directions to find the AC on UPLAN. This information will be used to approximate the number of trips anticipated during the peak hour. Depending on the intensity, possible mitigation measures estimated by this form, such as right or left turn lanes, will be identified. Table 1 shows the threshold values outlined in Administrative Rule R930-6 that are estimated in this form. The number of vehicles making left or right turns was approximated under the assumption that 25% of peak hour trips are left or right turning movements. This information is calculated in the and will also be used to determine if an access is allowed based on the AC.

Table 1: Possible Mitigation Measures

Access Category		Left Turn Lane (vehicles)	Left Turn Decel Lane (vehicles)	Left Turn Accel Lane (mph)	Right Turn Lane (vehicles)	Right Turn Decel Lane (vehicles)	Right Turn Accel Lane (vehicles)
2	(S-R)		5	>50[c]		10	10
3	(S-U)		5	>45[c]		10	10
4	(R-S)		10	>45[c]		25[b]	50[a, b]
5	(R-PU)		10	>45[c]		25[b]	50[a, b]
6	(R-U)	25	10[a]		50	25[a]	
7	(C-R)	25	10[a]		50	25[a]	
8	(C-U)	25	10[a]		50	25[a]	
9	(O)	25	10[a]		50	25[a]	

d. When the posted speed is > 40mph

e. Generally not required on roadways with more than 3 travel lanes in the direction of the right turn.

f. A left turn acceleration lane may be required if it will be a benefit to the safety and operation of the roadway.

3.4 Access Data Page

The Access Data page (shown in Figure 7) requires information relating to the geometrical constraints of a proposed access location including, the total number of accesses to the development, the number of accesses planned along the state route, access type, access width, and access spacing. The access type, access width, and access spacing questions are only for proposed accesses planned on state routes.

The help tab on this page under Access Spacing opens another page (shown in Figure 8) with step-by-step instructions and a drawing describing the measurements for the distances between the proposed access(es) and adjacent accesses. Distances to the nearest upstream and downstream accesses should be measured. Note that the nearest access may be across the street from the proposed access if left turn access is allowed. The form checks if access spacing requirements are compliant with roadway access categories from Administrative Rule R930-6.

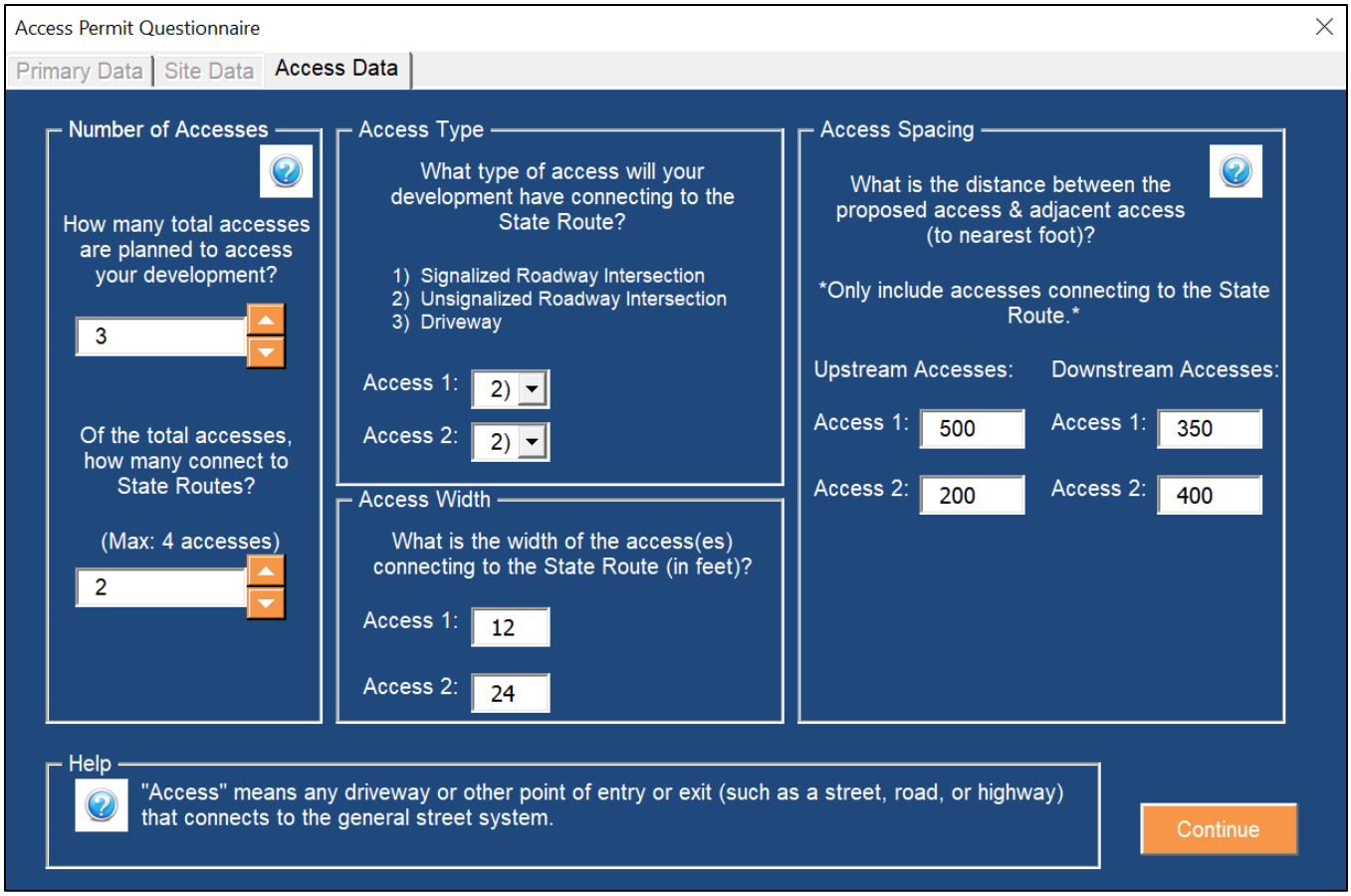


Figure 7: Access Data Page

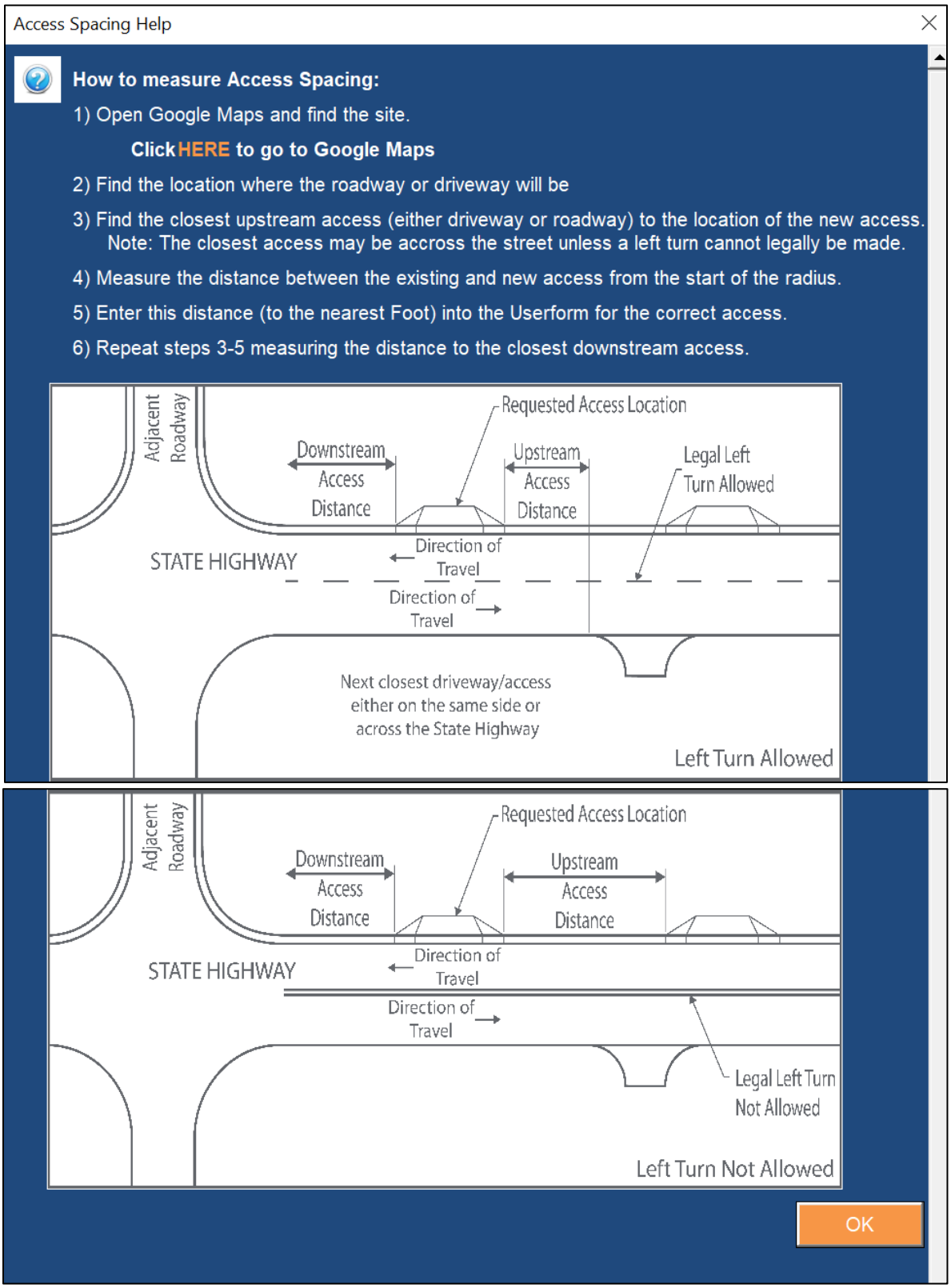


Figure 8: Access Spacing Help Page

3.5 Considerations Page

The Considerations page (shown in Figure 9) provides a list of potential access characteristics found in Administrative Rule R930-6 that may provide alternatives that reduce impacts to the State Highway system and could require additional considerations.

The "Help" section for this page opens a link to Administrative Rule R930-6 which houses descriptions for each of these items. Some items are described in the "Definition" section of the Rule while others are explained in the Rule text beginning on page 18. However, brief descriptions from the Rule can be found in Table 2.

If the applicant is unsure whether a consideration applies or if it is irrelevant to the site, the applicant should leave the box unchecked. Note that checked boxes may affect the ability to get a variance.

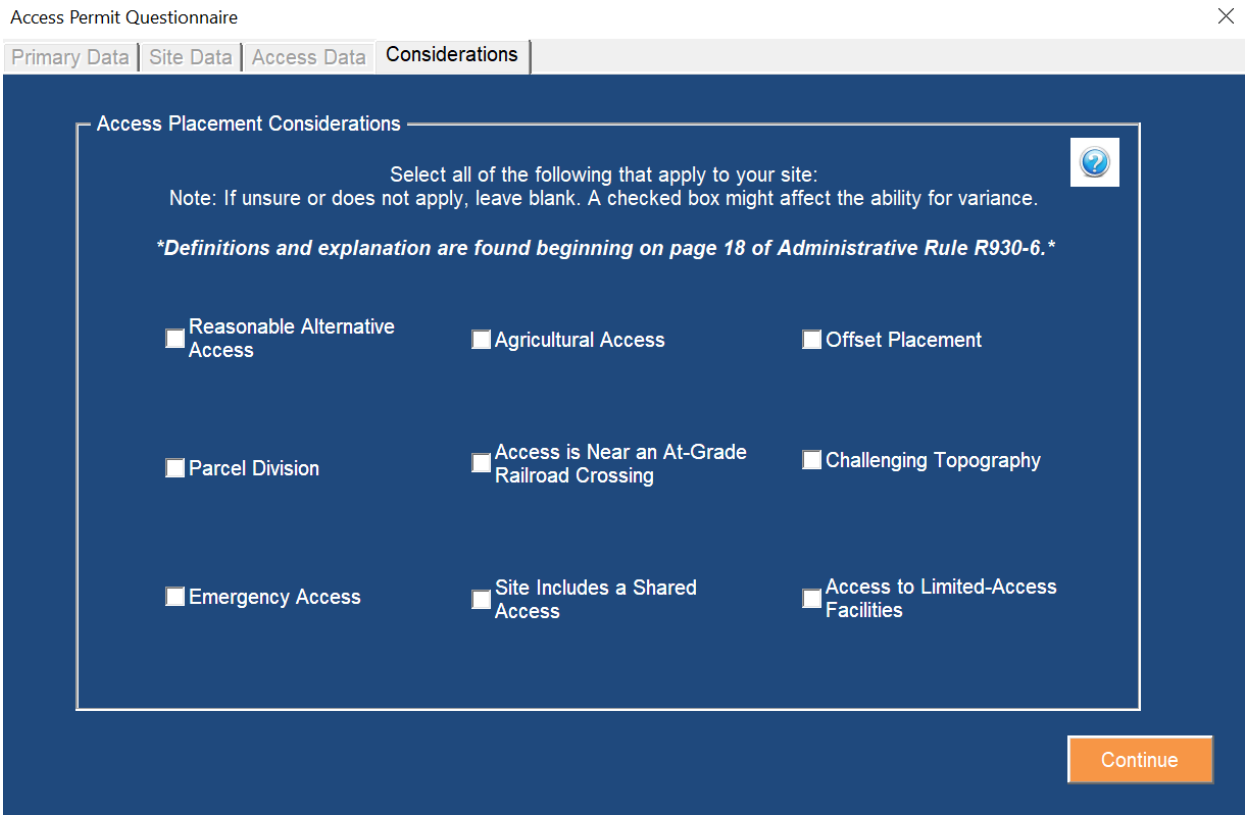


Figure 9: Considerations Page

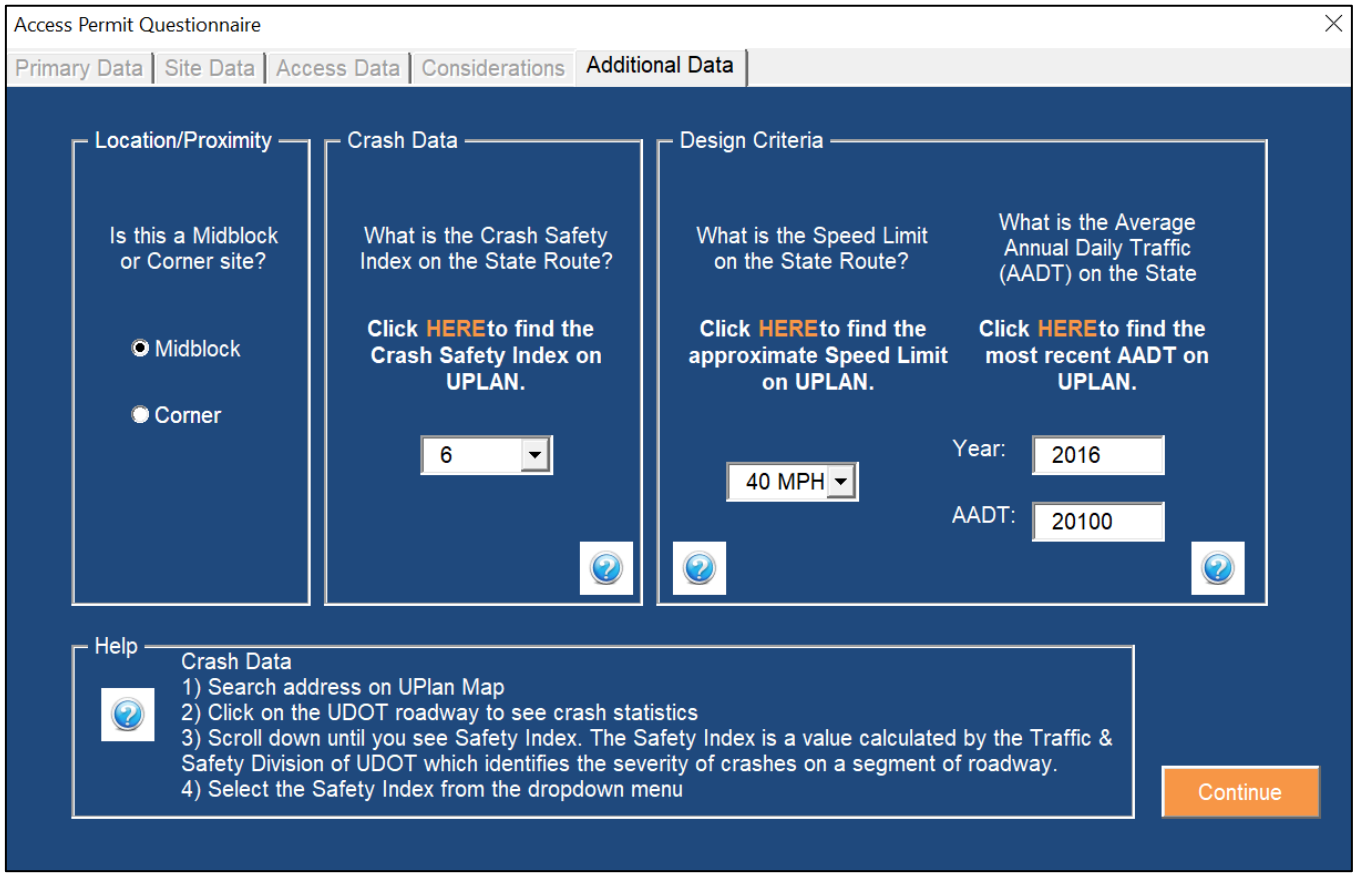
Table 2: Access Consideration Definitions (from R930-6 starting on pg 18)

Access Consideration Definitions	
Reasonable Alternative Access	When an application is created for access to a state highway with assigned access category 4 through 9, the access may be granted if reasonable alternate access cannot be obtained from the local street or road system. If the proposed access does not meet design or spacing standards, the access shall be denied if the proposed access on the property has reasonable alternate access available to the general street system. (i) Reasonable alternate access from a city or county road shall be determined in consultation with the appropriate local authority and the applicant. A determination of reasonable access from a local street or road shall include consideration of the local street or road function, purpose, capacity, operational and safety conditions and opportunities to improve the local street or road. (ii) Where a subject property adjoins or has access to a lesser function road or an internal street system or by way of dedicated rights-of-way or easements, such access will be considered a reasonable alternate access and any access to the state highway will be considered an additional access. (iii) Direct access to the state highway may be approved if the alternative local access will create, in the determination of the Department, a significant operational or safety problem at the alternative location and the direct access to the state highway will not be a safety or operational problem to the highway.
Parcel Division	No additional access rights may accrue upon the splitting or dividing of existing parcels of land or contiguous parcels under or previously under the same ownership or controlling interest.
Emergency Access	May be granted on state highways with access category 2 through 10 designations and where required by local safety regulations. Such direct emergency access may be permitted only if it is not feasible to provide the emergency access to a secondary roadway. Requests for such access must include a written explanation with references to local standards from the local authority safety official. Emergency access may not be granted to accommodate general vehicular entering or exiting traffic. The access shall be gated and locked.
Agricultural Access	May be granted to state highways with access category 2 through 9 designations and where the property has no other reasonable alternate access. Additional agricultural access to property under the same ownership or controlling interest may be granted due to topography or ongoing agricultural activities. Agricultural accesses must be kept to the minimum necessary to provide access service. Agricultural access must meet minimum access design and safety standards of this rule. A change in use of the parcel of land serviced by the agricultural access may require the access to be closed. The spacing criteria between accesses contained in this rule may be waived for agricultural access. All such agricultural accesses must meet the sight distance criteria of this rule.
Shared Access	Shared access of two or more parcels may be required where a proposed new access or the redesign of an existing access does not meet spacing standards and criteria for the appropriate access category. The access location shall serve as many properties and interests as possible to reduce the need for additional direct access to the state highway.
Access Near an At-Grade Railroad	Access near an at-grade railroad must not be located closer than 250 feet from the crossing. Circumstances may exist where greater spacing is required consistent with the appropriate access category spacing.
Offset	Every effort must be made to align opposing driveways and streets not separated by a non-traversable median.
Challenging Topography	Where existing topography or other existing conditions make the required access spacing intervals not feasible, the Department may consider topography, established property ownerships, unique physical limitations, unavoidable or pre-existing historical land use patterns, and physical design constraints with a reasonable attempt to achieve the required access spacing.
Access to Limited-Access	Under limited-access control, the following additional limitations shall apply. Where there are conflicts between the following limitations and other requirements of this rule, the more stringent

	requirement shall be met. j) The maximum feasible and economic access control must always be obtained. ii) On bypasses of cities and towns, all property access shall be prohibited except where the bypass is in a low population town with little or no business and where inadequate public crossroads for property access exists. iii) Other than on bypass roads, a maximum of five accesses per mile on each side of the highway may be granted. Accesses to property shall only be granted opposite to each other. iv) Where any property has access to another public road or roads, no access shall be given closer than ½ mile from the public road nor shall any two granted accesses be closer than ½ mile. However, where the proposed project involves reconstruction on or near an existing highway where a home, business or other property development is located and lack of direct access to a home, business or other property development would involve excessive property damage and added construction costs, access openings may be provided within the other stated limitations.

3.6 Additional Data Page

The Additional Data page (shown in Figure 10) requires inputs relating to the access location, crash safety index near the proposed access, and criteria needed to design the access. These inputs will also assist in estimating potential mitigation improvements outlined in Table 1.



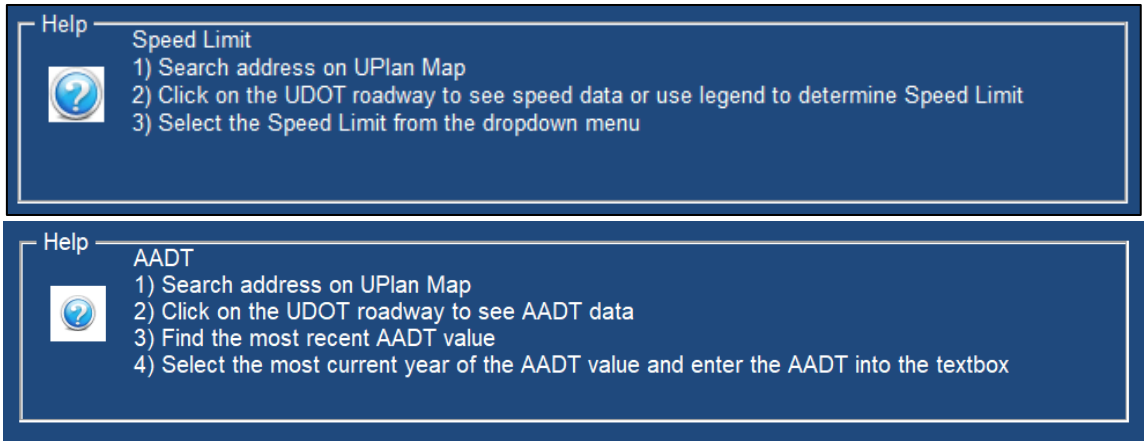


Figure 10: Additional Data Page

Active hyperlinks ("Click HERE") to UPLAN are included to collect information required on this page. Multiple "Help" sections provide additional direction to navigate to the pertinent information on UPLAN.

3.7 Mitigation Page

The Mitigation page (shown in Figure 11) provides mitigation strategies an applicant may elect to include or may already be including as part of their project that could reduce impacts to the State Highway system. This section establishes expectations of what may be required for a safe access onto the State Highway system and allows UDOT personnel to understand what mitigation improvements the applicant is willing to make if needed or will be making as part of their project. The implementation of these measures may address traffic needs of the project and the inclusion of these mitigations may expedite the permitting process.

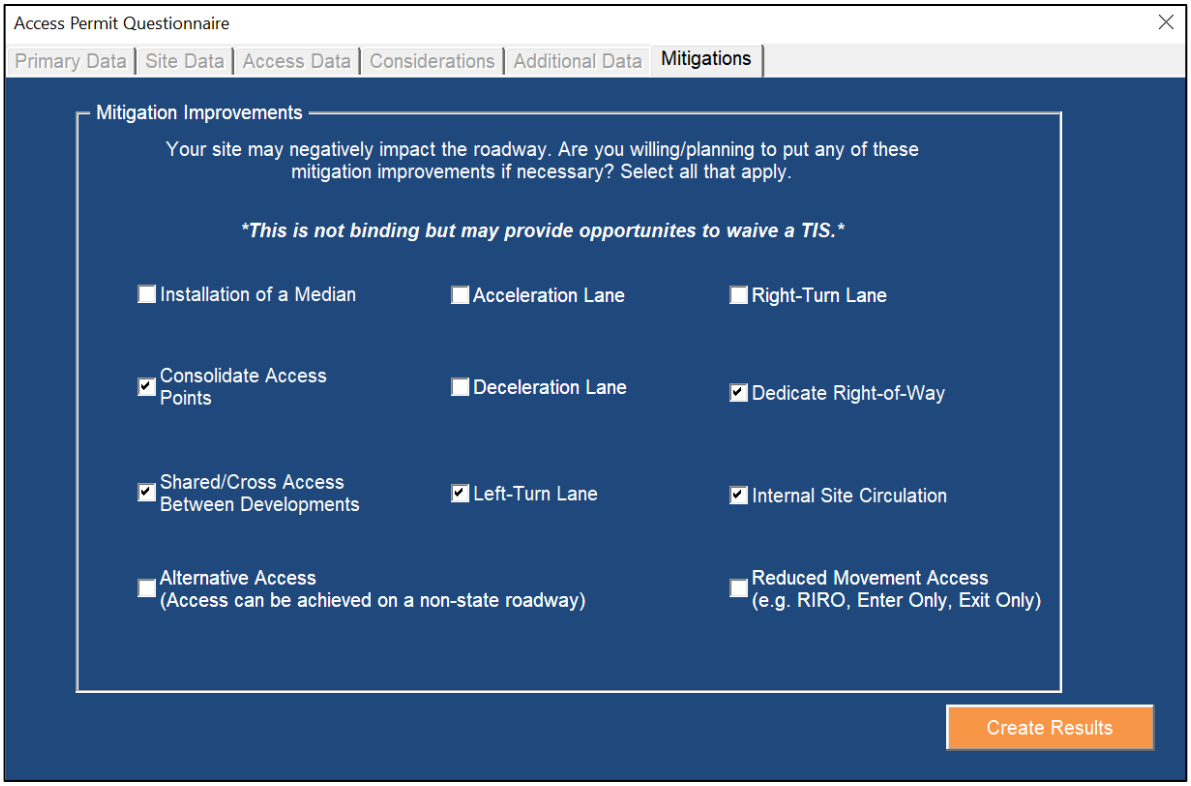


Figure 11: Mitigations Page

3.8 Results Page

Once the "Create Results" button is clicked on the Mitigations page (see Figure 11), a message box will appear. This message box, shown in Figure 12, outlines the next steps that the applicant should take. This includes scheduling a Pre-application meeting with the UDOT region, saving the Excel spreadsheet and emailing it to the UDOT region permit office. If an error occurs when the results sheet is being created, an error message box will appear (see Figure 13). This states that the results sheet cannot be completely created with all the information from the questionnaire. The error number and description are also shown in this message box. After the error message box is closed, the output report will be created as much as possible despite the errors that occurred.

The information from the questionnaire is summarized into a single page form to be reviewed at the pre-application meeting. This summary will provide UDOT with more complete information prior to the pre-application and establishes an expectation for what may be required in order for an access to be approved on the State Highway system. Figure 14 shows a sample of

the results sheet. This sheet should be brought to the Pre-application meeting if the questionnaire is completed beforehand.

The bottom half of the results sheet list the most frequent next steps and needed items in the application process. UDOT personnel will assist the applicant in understanding which of these steps are required to complete the application.

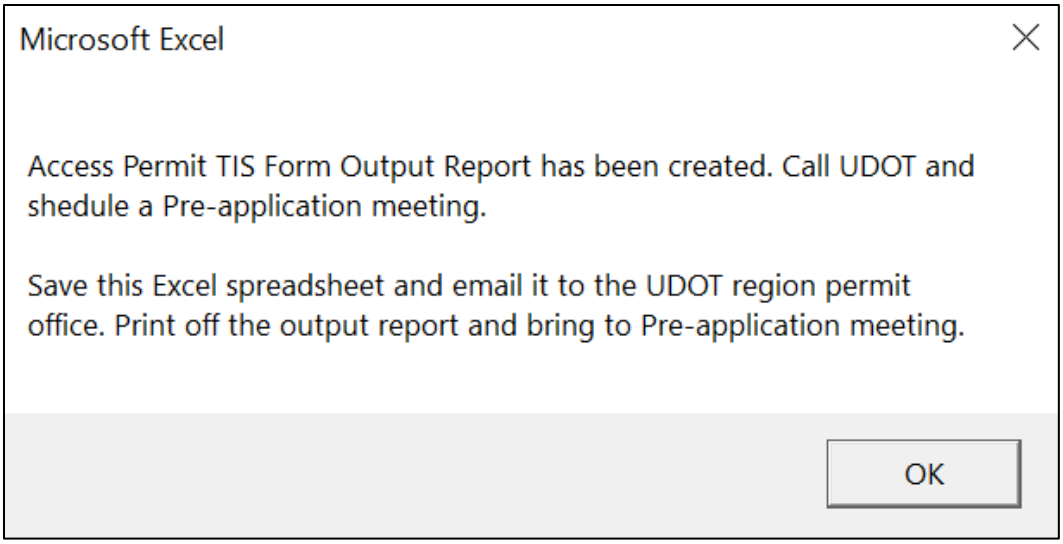


Figure 12: Message Box

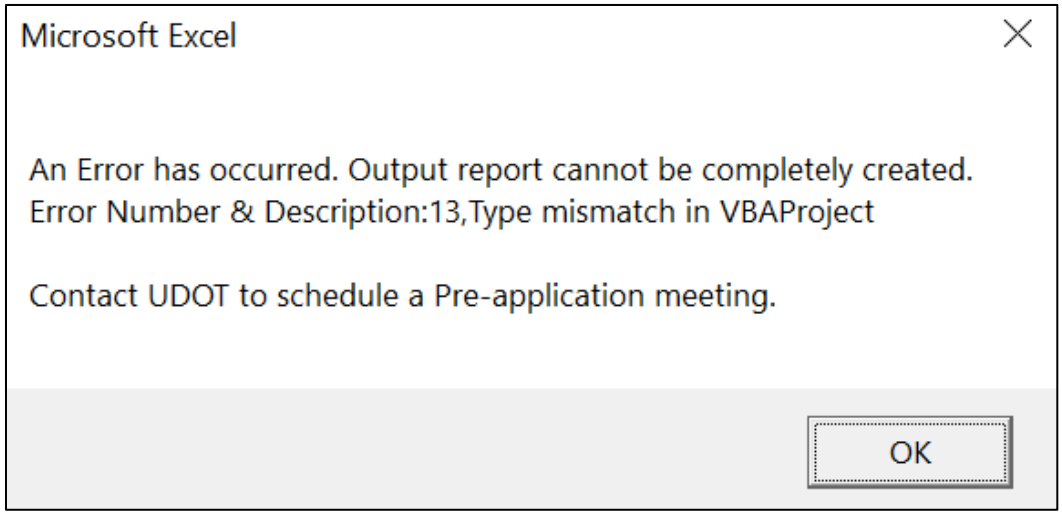
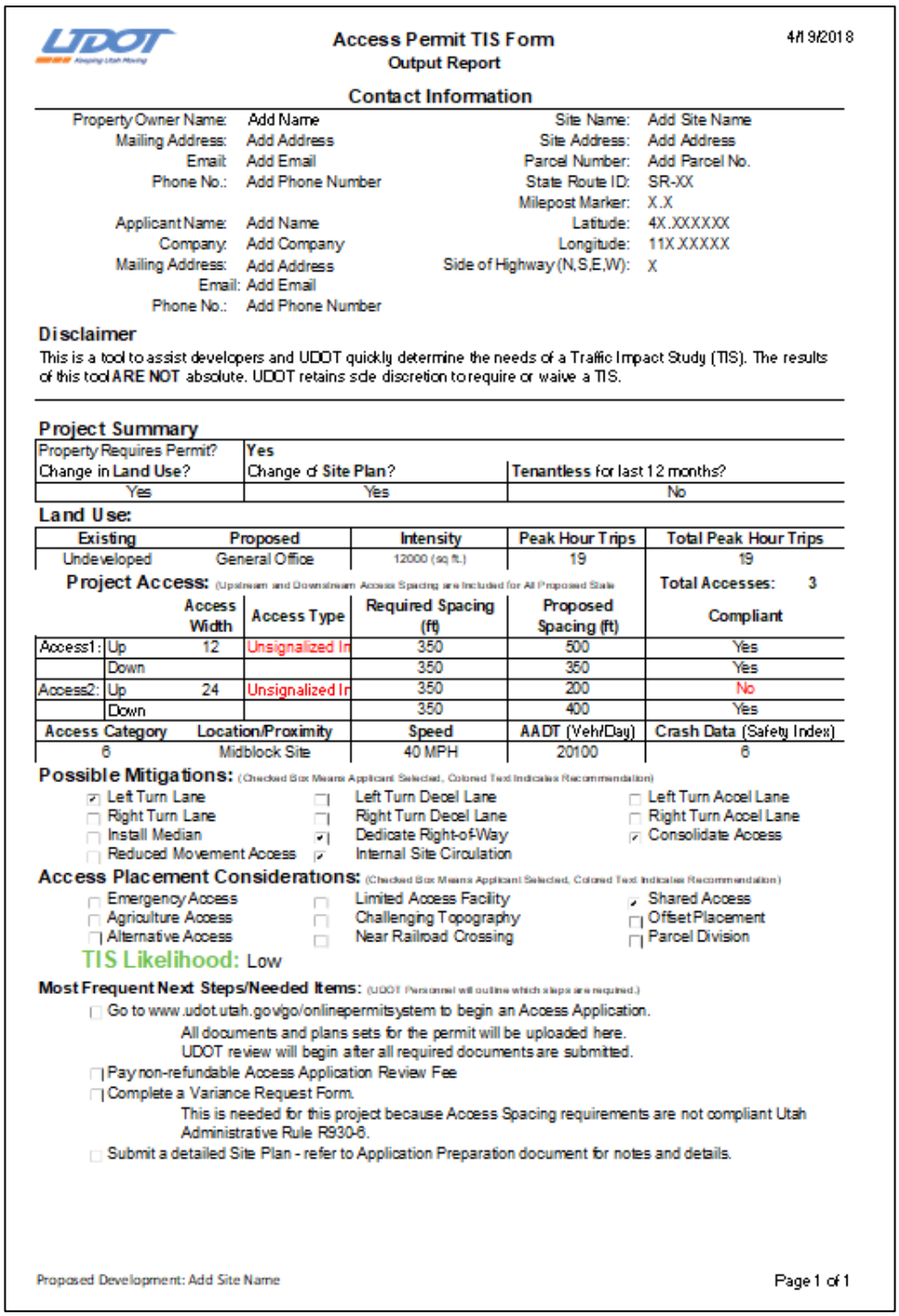


Figure 13: Error Message Box



Access Permit TIS Form
Output Report

4/19/2018

Contact Information

Property Owner Name:	Add Name	Site Name:	Add Site Name
Mailing Address:	Add Address	Site Address:	Add Address
Email:	Add Email	Parcel Number:	Add Parcel No.
Phone No.:	Add Phone Number	State Route ID:	SR-XX
		Milepost Marker:	X.X
Applicant Name:	Add Name	Latitude:	4X.XXXXXX
Company:	Add Company	Longitude:	11X.XXXXX
Mailing Address:	Add Address	Side of Highway (N,S,E,W):	X
Email:	Add Email		
Phone No.:	Add Phone Number		

Disclaimer

This is a tool to assist developers and UDOT quickly determine the needs of a Traffic Impact Study (TIS). The results of this tool ARE NOT absolute. UDOT retains sole discretion to require or waive a TIS.

Project Summary

Property Requires Permit?	Yes	
Change in Land Use?	Change of Site Plan?	Tenantless for last 12 months?
Yes	Yes	No

Land Use:

Existing	Proposed	Intensity	Peak Hour Trips	Total Peak Hour Trips
Undeveloped	General Office	12000 (sq ft.)	19	19

Project Access: (Upstream and Downstream Access Spacing are Included for All Proposed Sites) **Total Accesses:** 3

		Access Width	Access Type	Required Spacing (ft)	Proposed Spacing (ft)	Compliant
Access1:	Up	12	Unsignalized In	350	500	Yes
	Down			350	350	Yes
Access2:	Up	24	Unsignalized In	350	200	No
	Down			350	400	Yes

Access Category	Location/Proximity	Speed	AADT (Veh/Day)	Crash Data (Safety Index)
6	Midblock Site	40 MPH	20100	6

Possible Mitigations: (Checked Box Means Applicant Selected, Colored Text Indicates Recommendation)

- [x] Left Turn Lane
- [ ] Right Turn Lane
- [ ] Install Median
- [ ] Reduced Movement Access
- [ ] Left Turn Decel Lane
- [ ] Right Turn Decel Lane
- [x] Dedicate Right-of-Way
- [x] Internal Site Circulation
- [ ] Left Turn Accel Lane
- [ ] Right Turn Accel Lane
- [x] Consolidate Access

Access Placement Considerations: (Checked Box Means Applicant Selected, Colored Text Indicates Recommendation)

- [ ] Emergency Access
- [ ] Agriculture Access
- [ ] Alternative Access
- [ ] Limited Access Facility
- [ ] Challenging Topography
- [ ] Near Railroad Crossing
- [x] Shared Access
- [ ] Offset Placement
- [ ] Parcel Division

TIS Likelihood: Low

Most Frequent Next Steps/Needed Items: (UDOT Personnel will outline which steps are required.)

- [ ] Go to www.udot.utah.gov/go/onlinepermitsystem to begin an Access Application.
  All documents and plans sets for the permit will be uploaded here.
  UDOT review will begin after all required documents are submitted.
- [ ] Pay non-refundable Access Application Review Fee
- [ ] Complete a Variance Request Form.
  This is needed for this project because Access Spacing requirements are not compliant Utah Administrative Rule R930-6.
- [ ] Submit a detailed Site Plan - refer to Application Preparation document for notes and details.

Proposed Development: Add Site Name

Page 1 of 1

Figure 14: Form Results Output