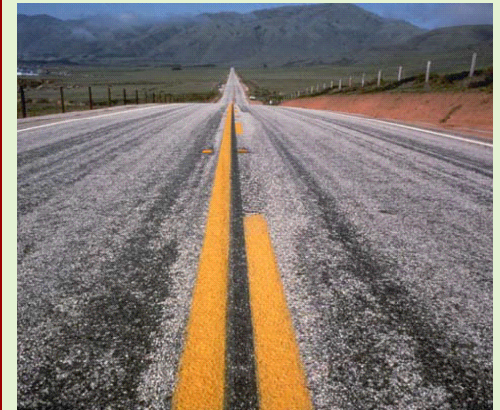


Innovative Contracting Strategies for Transportation Maintenance Outsourcing

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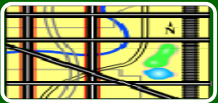
**Texas Department of
Transportation
0-6388**

January 2010

Overview



Research Motivation and Objectives



Research Methodology



Research Findings and Deliverables

- Maintenance Contracting Strategy Selection Framework
- Maintenance Contracting Strategy Selection Guide
- Case Studies on Innovative Maintenance Contracting Strategies
- Maintenance Contracting Strategy Selection Aid Tool



Conclusion and Recommendations

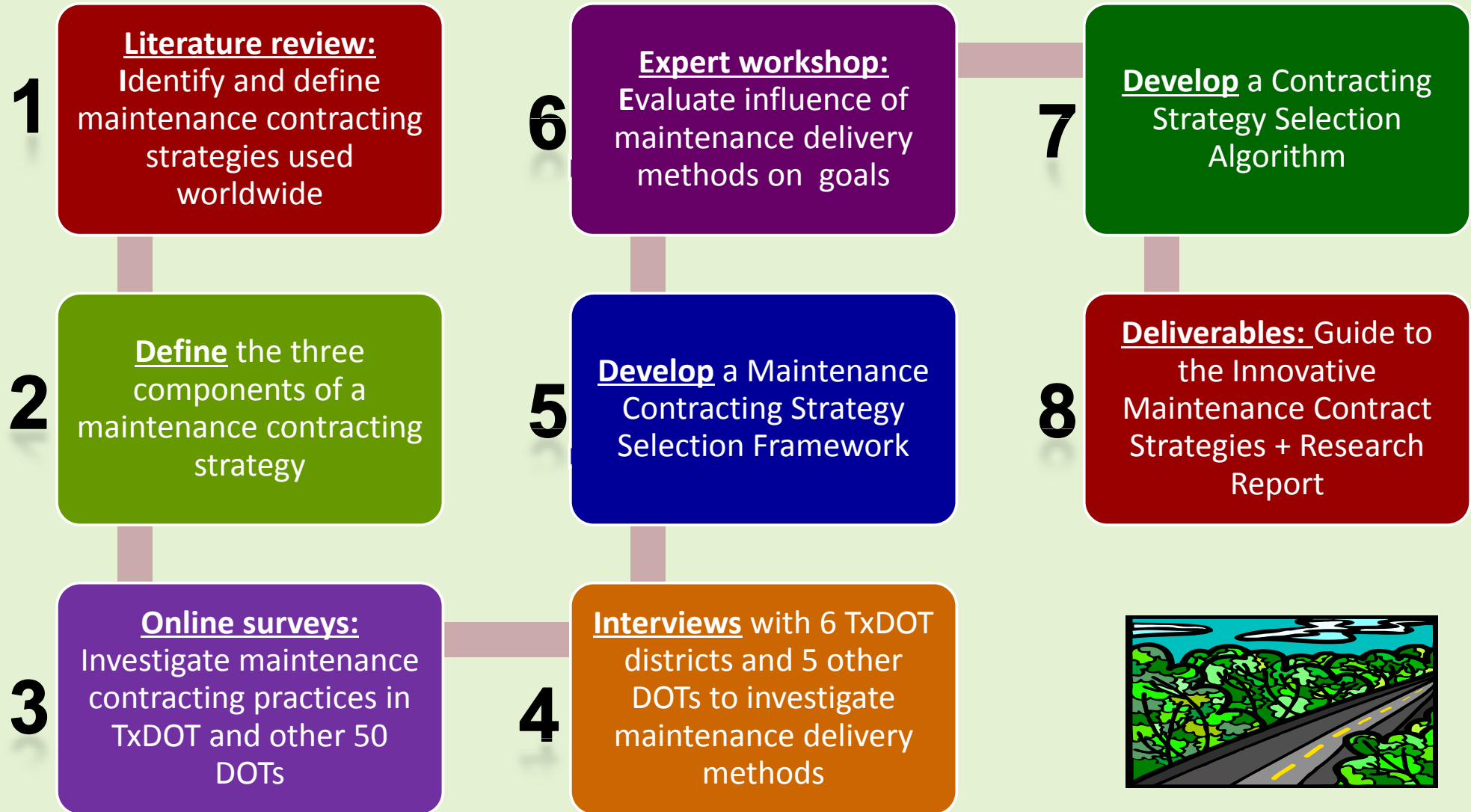
Research Motivation

- TxDOT is **expanding maintenance outsourcing** as a result of budget and manpower restraints
- TxDOT wants to **identify efficient contracting strategies** that might be implemented to help them achieve their maintenance goals

Research Objectives

- **Identify innovative maintenance contracting strategies** that are being used by other districts, other state DOTs or other countries
- Develop a decision **method for selecting appropriate contracting strategies** for outsourcing various maintenance activities

Research Methodology



Literature Review: Maintenance Contract Methods

Individual Activity

- 1. Individual Activity Contract Method
- 2. Jointly-Performed Maintenance Contract Method
- 3. Long-term Separate Maintenance Contract Method
- 4. Framework Contract Method

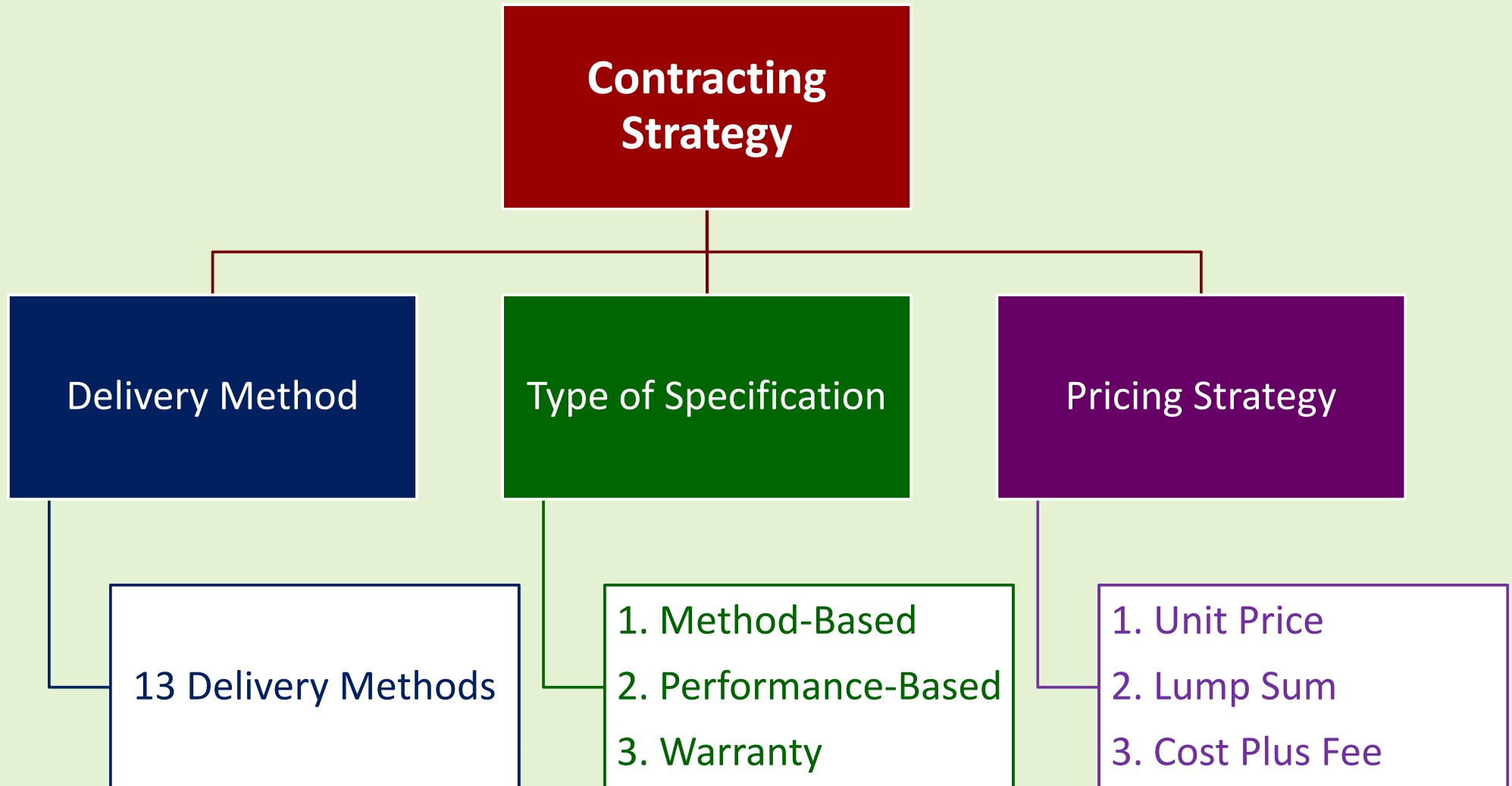
Bundled Activities

- 4. Framework Contract Method
- 5. Moderately Bundled Activities Contract Method
- 6. Partial Competitive Maintenance Contract Method

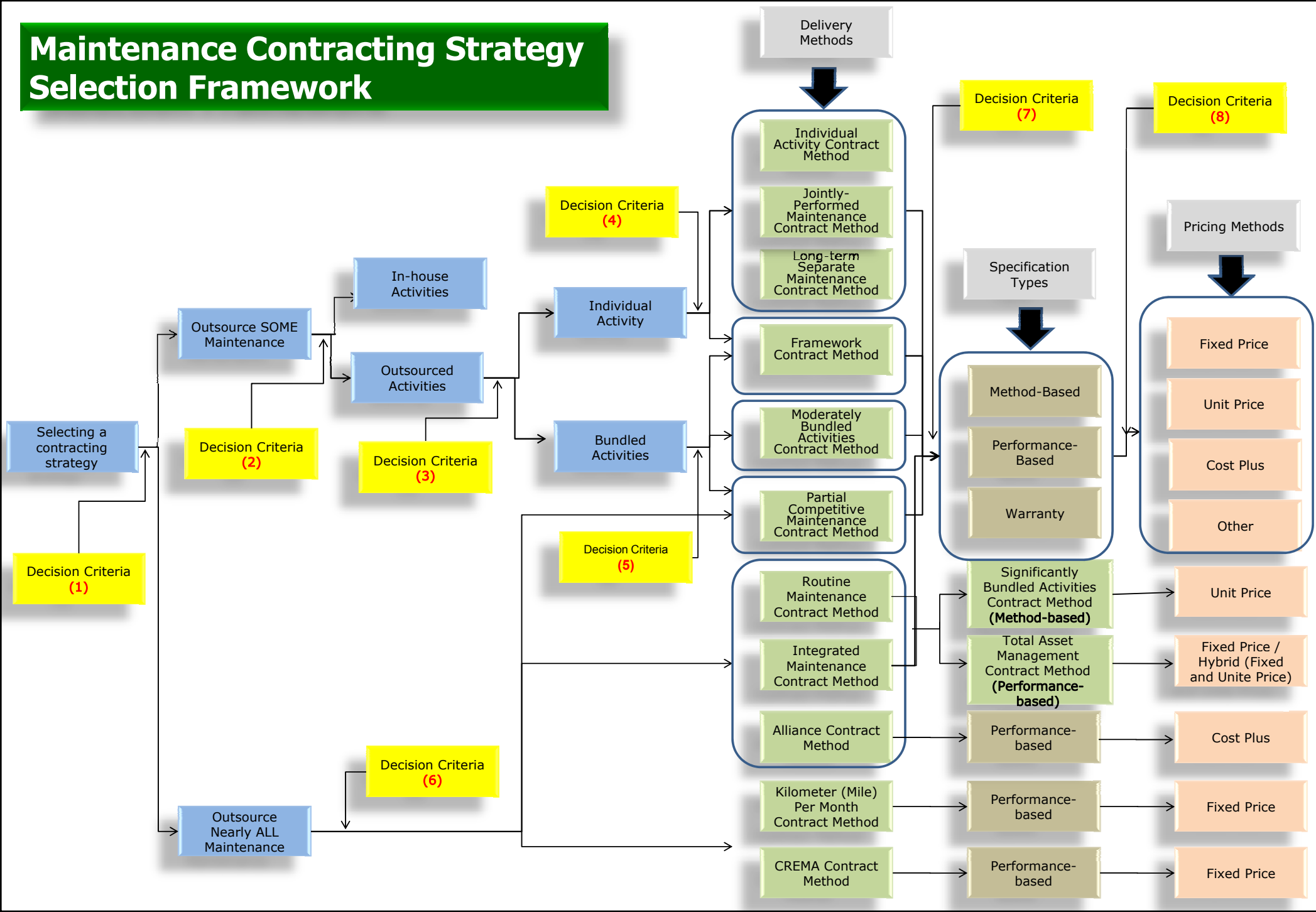
Nearly All Activities

- 6. Partial Competitive Maintenance Contract
- 7. Routine Maintenance Contract Method
- 8. Integrated Maintenance Contract Method
- 9. Significantly Bundled Activities Contract Method
- 10. Total Asset Management Contract Method
- 11. Alliance Contract Method
- 12. Kilometer (Mile) Per Month Contract Method
- 13. CREMA Contract Method

Definition of Contracting Strategy



Maintenance Contracting Strategy Selection Framework



Maintenance Contracting Strategy Selection Guide

Provides guidance on the selection of an appropriate maintenance contracting strategy that will help DOTs achieve their maintenance goals and accommodate various circumstances

1. Definition of the Delivery Method
2. Conditions for Appropriate Implementation
3. Selecting a Type of Specification
4. Pricing Strategy Options
5. Selecting an Award Strategy
6. Additional Information and Reference

Chapter 4 Contracting Strategy Selection Guide

4.1. Introduction to the Contracting Strategy Selection Guide



The purpose of this chapter is to provide guidance on the selection of an appropriate maintenance contracting strategy that will help SHAs achieve their maintenance goals and accommodate various circumstances (such as lack of equipment or expertise). Each of the 13 maintenance contracting strategies is discussed based on six aspects:

1. Description of the delivery method
2. Conditions for appropriate implementation
3. Selecting a type of specification
4. Pricing strategy options
5. Selecting an award strategy
6. Additional information and references.

The chapter begins with general guidelines for selecting an appropriate contracting strategy and then discusses each of the 13 delivery methods.

The *Maintenance Contracting Strategy Selection Framework* (Chapter 3) identifies 13 delivery methods that are appropriate for individually-let and bundled maintenance activities, including the bundling of *nearly all* maintenance activities. As shown previously in Figures 2.3 and 3.1, four delivery methods are appropriate for individually-let maintenance activities, three are appropriate for bundling a moderate number of maintenance activities, and six are appropriate for bundling *nearly all* maintenance activities. One delivery method is appropriate for either individually-let or moderately-bundled activities, and one delivery method is appropriate for either moderately-bundled or the bundling of *nearly all* maintenance activities. The framework also identifies three types of contract specifications, and three pricing strategies that are widely used by SHAs for maintenance contracting.

The definitions of the 13 delivery methods were presented in Chapter 2, along with Figure 2.3, *Diagram of the 13 Innovative Maintenance Delivery Methods*, which depicts the delivery methods that are appropriate for outsourcing individual, multiple, or *nearly all* maintenance activities. This information is restated in Table 4.1. The definitions of the types of contract specifications, pricing strategies, and contract award strategies are restated in Tables 4.2, 4.3 and 4.4 respectively. These definitions are restated in this chapter so that readers can easily refer to this information as they review the guidelines for selecting an appropriate contracting strategy that will help them achieve their maintenance outsourcing goals.

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Chapter 4 Contracting Strategy Selection Guide

4.2. General Guidelines for Selecting a Contract Strategy

4.2.1. General Guidelines for Selecting a Delivery Method

Many of the guidelines for selecting a contracting strategy are similar for each of the delivery methods discussed in the remainder of this chapter. Hence, to avoid repetition, identified in the next few paragraphs are general guidelines that can be considered for all 13 delivery methods. These general guidelines should be considered along with other special considerations identified for each particular delivery method.

4.2.2. General Guidelines for Selecting a Type of Specification

Typically, any one of the following three types of specifications may be selected:

1. Method-based specifications
2. Performance-based specifications
3. Warranty specifications

The type of contract specification is often dependent on the particular maintenance goals or circumstances that an SHA needs to accommodate. The following considerations often drive the selection of a particular type of specification:

- If an SHA is concerned about controlling the quality of materials and methods used to accomplish the maintenance work, a method-based specification is typically an appropriate choice.
- If the district wants to limit the inspections their in-house personnel perform, due to limitations in experience or personnel, a performance-based specification can accommodate this goal.
- If the district needs or wants a warranty that is longer than the standard one-year materials and workmanship warranty, then a warranty specification that identifies the length of the warranty period should be selected.

4.2.3. General Guidelines for Selecting a Pricing Strategy

Typically, any one of the following three pricing strategies may be selected:

1. Unit Price
2. Lump Sum
3. Cost Plus Fee

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Case Studies on Maintenance Contracting Strategies

11 Case Studies on 5 Maintenance Contracting Strategies — interviewed districts in TxDOT and other DOTs to identify their best practices, lessons learned, and implementation strategy

1. Activities Outsourced Using the Contracting Strategy
2. Description of the Contracting Strategy Investigated
3. Why this Contracting Strategy was Selected
4. Specific Criteria Used to Select this Contracting Strategy
5. How this Contracting Strategy was Implemented
6. Outcome Resulting from Implementation of this Strategy
7. Best Practices and Lessons Learned

Chapter 5 Case Studies on Innovative Maintenance Contracting Strategies



This chapter discusses 11 case studies on the implementation of maintenance delivery methods that have been investigated through in-person interviews and one phone interview. Each case study developed from an interview with either the director of maintenance or one or more maintenance expert within TxDOT or other state DOTs. Six of the cases describe four delivery methods that are being used in Texas (See Table 5.1). The other five cases describe four delivery methods that are being used outside Texas (See Table 5.2).

Table 5.1: List of TxDOT districts and respective delivery methods investigated

TxDOT District	Delivery Method
Dallas	Total Asset Management Contract Method (also called Total Maintenance Contract)
Houston	Significantly Bundled Activities Contract Method (also called General Maintenance Contract)
Lubbock	Moderately Bundled Activities Contract Method
Lufkin	Jointly-Performed Maintenance Contract Method
Pharr	Moderately Bundled Activities Contract Method
Waco	Total Asset Management Contract Method (also called Total Maintenance Contract)

Table 5.2: List of other state DOTs and respective delivery methods investigated

State DOT	Delivery Method
Florida	Total Asset Management Contract Method (also called Asset Maintenance Contract)
North Carolina	Total Asset Management Contract Method (also called Performance-based Contract)
Pennsylvania	Jointly-Performed Maintenance Contract Method
Kentucky	Moderately Bundled Activities Contract Method (also called Hybrid Contract)
Maine	Long-term Separate Maintenance Contract Method

Chapter 5 Case Studies on Innovative Contracting Strategies

5.4. Case Study 4: Moderately Bundled Activities Contract Method

State and District Visited: Lubbock District of TxDOT

5.4.1. Activities Outsourced Using this Contracting Strategy

Using the moderately bundled maintenance activities contracting strategy, a few roadside maintenance activities on a specified highway and controlled access routes were let out together. The roadside maintenance activities typically covered in this contract include:

- Mowing
- Fertilizer application
- Litter control
- Hand sweeping of highways
- Plant beds
- Brush removal
- Cleaning drainage channel
- Hand sweeping of ADA ramps
- Pruning
- Tree removal
- Cleaning riprap

Guardrail maintenance is not included.

5.4.2. Description of the Contracting Strategy Investigated

Delivery Method: In a Moderately Bundled Activities Contract Method, a few maintenance activities that are of a similar nature and have a compatible sequence of work are let out together, such as mowing, sweeping, and litter pick-up.

Type of Contract Specifications: Method-Based

Pricing Strategy for this Contract Strategy: Unit Price

Contract Duration: Two years with a renewal option

Award Strategy: Low Bid

5.4.3. Why this Contracting Strategy was Selected

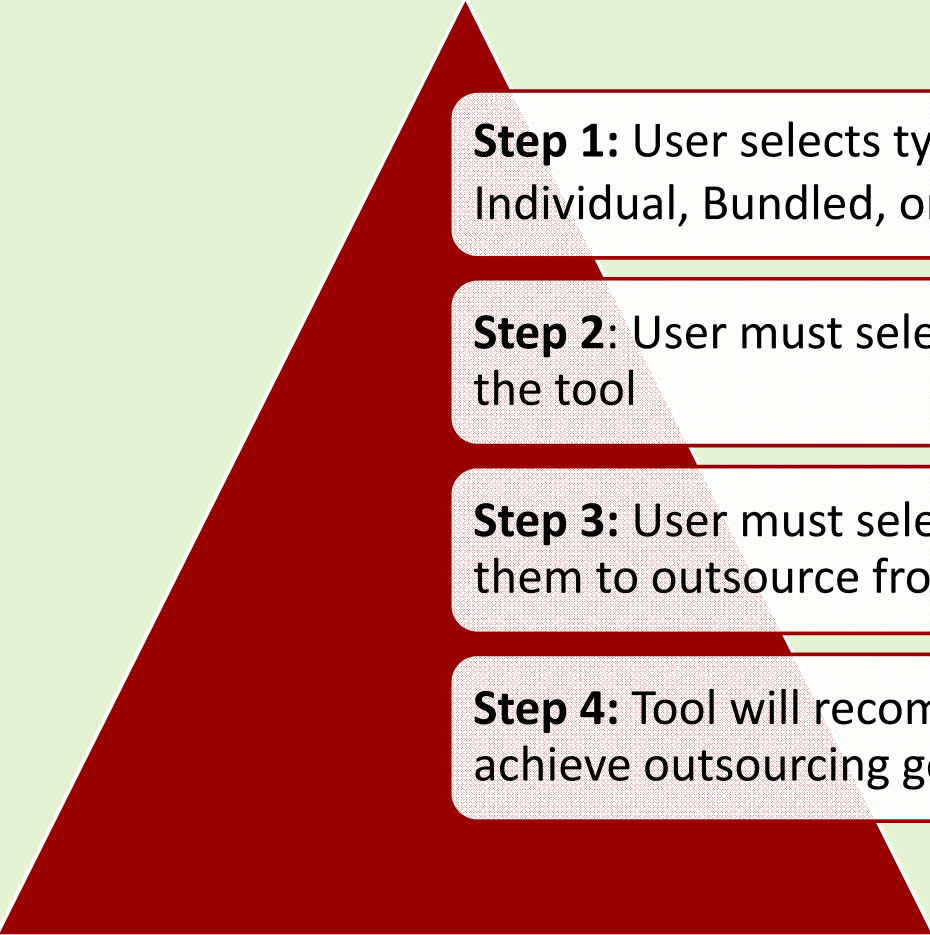
Lubbock District decided to bundle several individual roadside maintenance contracts into one contract to reduce the number of contracts it had to manage and to reduce overhead costs. The method enabled them to put their personnel mostly on pavement maintenance.

5.4.4. Specific Criteria Used to Select this Contracting Strategy

The following specific criteria were used by Lubbock District for selecting the Moderately Bundled Activities Contract Method for roadside maintenance:

Maintenance Contracting Strategy Selection Tool and Algorithm

Tool is a spreadsheet selection aid tool:



Step 1: User selects type of activity(ies) to be outsourced: Individual, Bundled, or Nearly All Activities.

Step 2: User must select the relevant outsourcing goals provided in the tool

Step 3: User must select the circumstances that are motivating them to outsource from a list in the tool

Step 4: Tool will recommend delivery methods that can help achieve outsourcing goals while accommodating circumstances

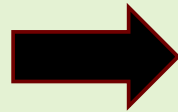
Maintenance Contracting Strategy Selection Tool and Algorithm

Tool is a spreadsheet selection aid tool:

Individual Activity

Bundled Activities

Nearly All



Please check the level at which your district want to achieve the outsourcing goals:

No.	Outsourcing Goal	N/A	Low	Med	High
1	The DOT wants a long-term commitment from the contractor.	<input type="radio"/> N/A	<input checked="" type="radio"/> Low	<input type="radio"/> Med	<input type="radio"/> High
2	The DOT wants to reduce the amount of time for bidding and awarding projects.	<input type="radio"/> N/A	<input type="radio"/> Low	<input type="radio"/> Med	<input checked="" type="radio"/> High
3	The DOT wants to reduce contract administrative load by bundling activities together.	<input type="radio"/> N/A	<input type="radio"/> Low	<input type="radio"/> Med	<input checked="" type="radio"/> High
4	The DOT wants to reduce the coordination effort among multiple maintenance contractors.	<input type="radio"/> N/A	<input type="radio"/> Low	<input checked="" type="radio"/> Med	<input type="radio"/> High

STEP 1

STEP 2

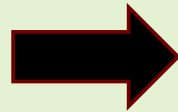
Maintenance Contracting Strategy Selection Tool and Algorithm

Tool is a spreadsheet selection aid tool:

Individual Activity

Bundled Activities

Nearly All



Please check the circumstances that accommodate your district:

No.	Circumstances	check if applicable
1	We were required to reduce our full-time employee (FTE) workforce, but we still have a significant amount of maintenance work to complete and not enough personnel.	<input checked="" type="checkbox"/>
2	Budget limitations caused us to consider innovative contracting strategies that could help us complete required maintenance work at a reduced cost.	<input checked="" type="checkbox"/>
3	We have some in-house personnel who can perform some of the work associated with a particular individual activity but they cannot complete all of the work.	<input checked="" type="checkbox"/>

STEP 1

STEP 3

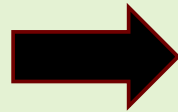
Maintenance Contracting Strategy Selection Tool and Algorithm

Tool is a spreadsheet selection aid tool:

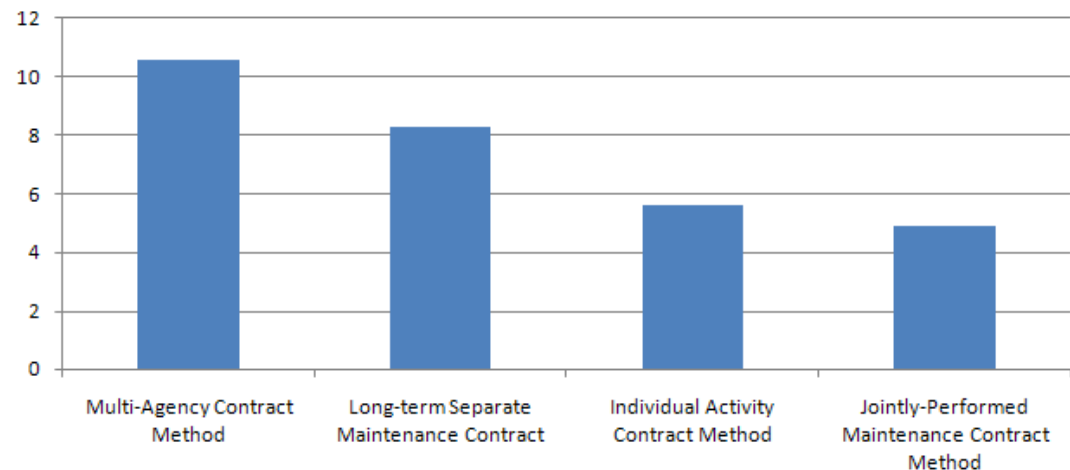
Individual Activity

Bundled Activities

Nearly All



Individual Maintenance Delivery Methods Ranking



Recommended Delivery Methods

Highly recommend: **Multi-Agency Contract Method**

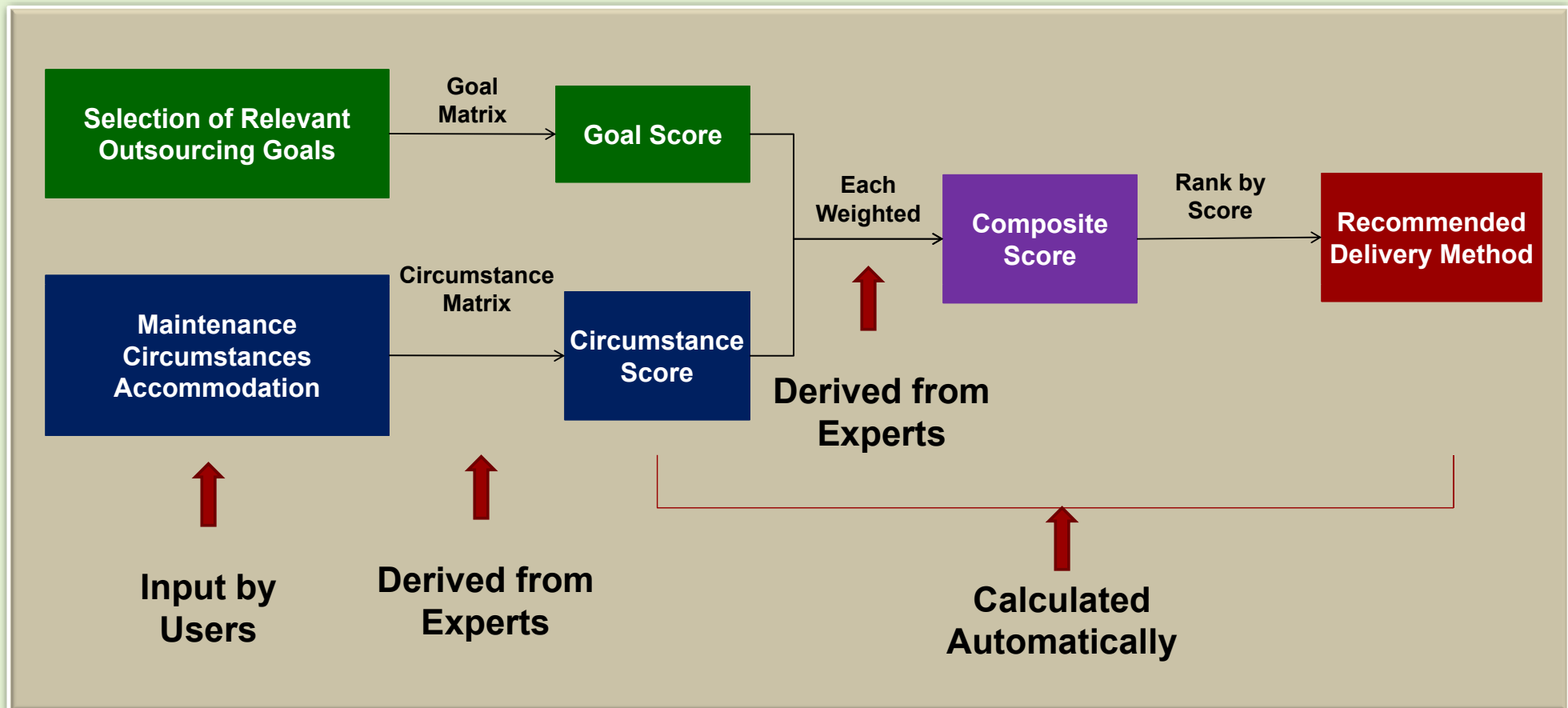
Recommend: **Long-term Separate Maintenance Contract**

STEP 1

STEP 4

Maintenance Contracting Strategy Selection Tool and Algorithm

Algorithm is based on user input of maintenance goals and circumstances, then assignment of weights based on expert input

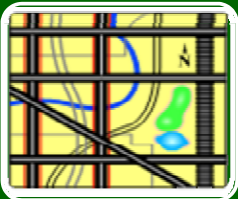


Conclusions and Recommendations



Identified 13 maintenance delivery methods

- Several are not used in the U.S.
- Hence, need pilot studies to determine their utility in the U.S.



Developed Maintenance Contracting Strategy Selection Framework

- Decision process for selecting contracting strategies for various maintenance activities
- Not automated, but with larger research project, could be



Developed Maintenance Contracting Strategy Selection Guide and Cases

- Assists in selecting and implementing appropriate contracting strategies
- But, need case studies on all of the 13 strategies



Developed Maintenance Contracting Strategy Selection Tool

- Aids in selecting an appropriate contracting strategy to achieve maintenance goals
- Need much more extensive data collection from worldwide experts to populate the tool