

 <b>OR-AS</b> Operations Research Applications and Solutions	Case Name: UK Road Project	Sector	Construction (Civil)
	<b>OR-AS</b> Operations Research - Applications and Solutions <a href="http://www.or-as.be">www.or-as.be</a> <a href="mailto:info@or-as.be">info@or-as.be</a>	Baseline Schedule	Schedule with resources
			Schedule with costs
		Risk Analysis	Random simulation
Submitted by	Matthias Danneel		One of nine std. scenarios
Date	December 2023		User defined distributions
File Name	C2023-10	Project Control	Automatic tracking
			Tracking based on user input

## 1. Project description

Project authenticity

The construction of a road consists of several phases and activities. Before the actual construction of the new road surface can start, the existing material that is present on the site must be removed. Once this first phase has been completed the second phase can start. The second phase is the construction of the sewer system. During the third phase, the actual road surface is being laid. Finally, there is the finishing phase, in which the last details of road construction are being dealt with. Each phase has multiple activities that will be briefly discussed further in this chapter. The total length of the road is divided in parts from 0 km till 15.000 km.

## 2. Project properties

### 2.1. Baseline Schedule

General	
# Activities	19
Planned Duration (PD)	234 days
Budget At Completion (BAC)	N/A
Renewable Resources	-
Consumable Resources	-

\* standard eight-hour working days

Network topology	
Serial/Parallel (SP)	55%
Activity Distribution (AD)	40%
Length of Arcs (LA)	45%
Topological Float (TF)	4%

### 2.2. Risk Analysis

Random simulation by ProTrack was performed using the default symmetric triangular risk distribution profiles.

	Cost sensitivity		
	avg [%]	std dev [%]	skew [-]
CRI-r	N/A	N/A	N/A
CRI-rho	N/A	N/A	N/A
CRI-tau	N/A	N/A	N/A

	Resource sensitivity		
	avg [%]	std dev [%]	skew [-]
CRI-r	N/A	N/A	N/A
CRI-rho	N/A	N/A	N/A
CRI-tau	N/A	N/A	N/A

	Time sensitivity		
	avg [%]	std dev [%]	skew [-]
CI	0.6	0.4	-0.54
SI	0.83	0.24	-1.42
SSI	0.25	0.22	0.81
CRI-r	0.14	0.16	1.79
CRI-rho	0.14	0.16	1.91
CRI-tau	0.09	0.11	2.07