





POLAND: ENHANCING THE BERLIN-WARSAW MOTORWAY WITH PRIVATE SECTOR PARTICIPATION

The development program of the Polish A2 Toll Motorway (located in the heart of the corridor between Warsaw and Berlin and forming part of the Trans-European Networks-TENs) has an extensive history, with original schemes having been submitted as far back as the seventies. However, following the submittal of final offers (1996) and signature of the original Concession Agreement (1997) with the General Directorate of Roads & Motorways (GDDKiA), both the public and the private party (Autostrada Wielkopolska SA or AWSA) undertook a number of changes to the project documentation due to Lender requirements, and it was in October 2000 that financial close was eventually achieved, leading immediately thereafter to commencement with the design and construction works of

[THE POLISH A2 TOLL MOTORWAY] IS ONE OF THE MOST SIGNIFICANT PIONEER EFFORTS, AND AT THE TIME, WAS THE LARGEST PPP INFRASTRUCTURE PROJECT IN THE REGION OF CENTRAL AND EASTERN EUROPE.

section, 89 km of new construction by the Development Company, with the remainder (13 km urbanized Poznań By-Pass) being built and funded by the public sector and with separate EU funding.

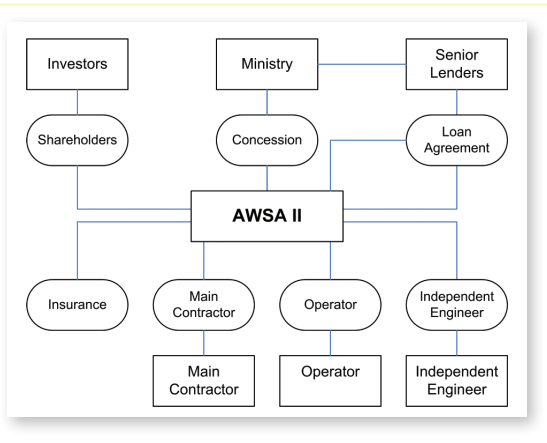
Construction was completed and commissioning occurred on a section-by-section basis at the end of years 2003, 2004, and 2005. Since then, and anticipated until the expiration of the concession period in 2037, the operations and routine maintenance services of this open toll system motorway are being performed by the company Autostrada Eksploatacja SA (AESA) with inputs from the French motorway operator EGIS.

Tolls – the original payment mechanism was based on actual hard-tolling of all vehicles but was subsequently modified in late 2005, resulting in a hybrid model (with only tolling for regular passenger vehicles in Polish Zloty and with a shadow toll based on a Vignette system for larger (→ 12 ton) HGV vehicles. This resulted in a significantly higher volume of heavy vehicles being attracted to this segment of the motorway. This Segment I stretch currently has an annual average daily traffic AADT of ca. 18,000 vehicles/day (with two-thirds coming from light vehicles and the remainder from heavy vehicles).

TABLE 1: TOLL RATES SEGMENT I

	Section 1 Initial (a) 2003	Sections 1,2,3 Revised (b) 2004	Sections 1,2,3 New (c) 2005/6/7/8/9	Sections 1,2,3 New (d) 2010	Sections 1,2,3 New (e) 2011
Class 1	10	11	11	12	12
Class 2	16	18	27	27	27
Class 3	24	27	41	41	41
Class 4	37	42	63	63	63
Class 5	100	110	110	110	110

(a) PLN incl. VAT at 7% (b) U\$ 1 = PLN 3.0 (c) PLN incl. VAT at 22% (d) March 2010 (e) January 2011



However, owing to a change in law which has led to the abolition of the Vignette system and re-introduction of real tolls for all vehicle classes as of 1st July 2011 — which was in deviation to the terms of a Concession Agreement Annex effectuated in 2005 — the key sponsors of AWSA (Kulczyk Holding SA, Meridiam Infrastructure SA and Strabag AG) are aiming to reach an amicable solution with the Ministry of Infrastructure in Poland for the remainder of the Concession period.

SEGMENT II: OVERALL HIGHLIGHTS

After several years of deliberations and after beginning operation of Segment I in August 2008, and following agreement with the public

party (Ministry of Infrastructure and the Polish Directorate for Roads and Motorways GDDKiA) on the so-called “deferred business terms” within the context of the original 2007 Concession Agreement, AWSA signed the respective Annex for the development of Segment II. This would lead to the further extension of the new highway westwards to the border with Germany.

Immediately after signature, the Strabag Group accelerated efforts with respect to the design and permitting works, and in late June 2009, new financial close was reached with the lenders for this second segment. AWSA had effectively novated its rights to a new special purpose vehicle (“AWSA II”), consisting of the three key sponsor entities (Kulczyk HoldingSA/KWM Investment GmbH, Meridiam Infrastructure SA and Strabag AG) as listed above.

The total project costs for Segment II amounted to just over €1.5 billion, with €185 mio. (12%) of the funding requirement being provided by the shareholders, €380 mio. (25%) by a group of 12 international commercial banks, and the large

majority (63%) of the total funding requirements through construction completion coming from the EIB, via a loan backed by the Polish State Treasury. Deutsche Bank is acting as the Facility Agent of the commercial banks and Louis Berger is acting as the Technical Adviser to the lending institutions.

The design and construction works amount to just above €1.3 billion and have been executed on a lump-sum, turn-key basis by the Main Contractor, a design and construction joint venture entity with the name of "A2 Strada Sp. z o.o." (whose shareholders consist of Strabag AG and Kulczyk Holding SA/KWM GmbH).

Key construction quantities included 13,000,000 m³ of earthworks, 84 structures, 6 interchanges and over 2,200,000 m² of concrete pavement. Construction on this Segment II stretch of 105 km (87 km of new construction and 17 km of upgrading works) from the German-Polish border at the cities of Frankfurt on the Oder and Świecko, and continuing in an eastward direction to Nowy Tomyśl (the western point of Segment I), commenced in early July 2009.

The large majority of the works (i.e., roads, bridges and buildings) were executed by the Strabag Group's Polish affiliate (Strabag Sp. z o.o.) which represents the largest single contract in the history of the Group.

The entire Segment II toll motorway has been completed and opened in a staged manner, with partial opening to traffic on November 30, 2011, full completion on March 30, 2012, and commencement of operation and all tolling activities in May 2012. The key aim of the Polish Government has been to demonstrate Poland's user friendliness as one of the co-host nations with the Ukraine of the European UEFA football/soccer championships in June 2012, together with the necessity to help alleviate the adverse situation currently existing, from a traffic and safety perspective, on existing congested and inadequate highways.

The A2 Strada management and other project stakeholders demonstrated progress in a most positive way with the realization of a timely, successful completion of this challenging project, on budget and schedule, with no outstanding claims. They did this with over 2,000 dedicated staff and workers, with more than 1,000 pieces of equipment



fully mobilized in the field, and through severe winter seasons.

Following completion, the Segment II toll motorway is to be operated as a “closed system” in May 2012 and routinely maintained by the Operator AESA (chosen by AWSA, with Ministry and Lender approval including seamless interface with Segment I previously operated as an open toll system), who will collect real toll revenues on behalf of the Ministry. The Ministry will in turn cause Availability Payments to be made to AWSA II on a monthly and semi-annual basis according to contractually-defined payment mechanisms and performance criteria. The AADT for Segment II is projected to be 49,000 (light vehicles) and 27,000 (heavy vehicles) in mid-2012, with steady expected growth to approx. 68,000 (light vehicles) and 40,000 by 2020.

SEGMENT II: SIGNIFICANT/ DISTINGUISHING DESIGN AND CONSTRUCTION-RELATED ASPECTS

A. In comparison to previous experience in the region, and with respect to even some of the initial drawbacks witnessed with respect to Segment I, the entire *design and permit process* of Segment II was enhanced by some key features: the ability of the private partner to properly commence such work prior to financial close through the effective use of approval conferences where all relevant project participants (AWSA II, A2 Strada, the Designer, Independent Engineer, Ministry/GDDKiA and as appropriate AESA and the Lenders Technical Adviser) proactively strove to converge and agree on the specific project details in a proficient manner. The end result was the ability to freeze the design parameters in a timely fashion, allowing for the design and permit-related risks (both in time and commercial terms) to recede considerably.

B. As highlighted above, the Segment II toll motorway has been implemented via *concrete pavement technology*. Many of the advantages

...THE ENTIRE *DESIGN AND PERMIT PROCESS* OF SEGMENT II WAS ENHANCED BY THE *ABILITY* OF THE PRIVATE PARTNER TO PROPERLY COMMENCE SUCH WORK PRIOR TO FINANCIAL CLOSE THROUGH THE EFFECTIVE USE OF APPROVAL CONFERENCES WHERE ALL RELEVANT PROJECT PARTICIPANTS PROACTIVELY STROVE TO CONVERGE AND AGREE ON THE SPECIFIC PROJECT DETAILS IN A PROFICIENT MANNER.

of concrete pavement (e.g., long duration, less noise emission by vehicles, lower life-cycle costs owing to fewer heavy maintenance interventions over the concession period) are known to most industry participants. The project-specific pavement design consists of the following components: 27 cm of final concrete pavement on top of a thin layer of geo-textile, which in turn is laid on top of 20 cm of lean concrete over a 33 cm base of anti-frost protection layer. The previously alluded to 2.2 million m² concrete pavement quantity amounts to a surface area covering roughly 300 football fields!

C. In addition without a doubt, the most visible and important distinguishing feature of Segment II

relates to *environmental protection* and the practice of abiding by such high standards for the purpose of securing approval of the European Commission; which in turn unlocked the necessary financial contribution by the European Investment Bank (EIB) to finance this project.

A significant part of the costs of the works has been dedicated to measures to protect the Environment. The Segment II stretch crosses through a number of Natura 2000 protected areas. "Natura 2000" is an European Union-wide network of nature protection areas established under the EU Habitats Directive (92/43/EEC) and the Birds Directive (79/409/EEC). In order to fulfill all necessary requirements

CONSTANT MONITORING, IN CLOSE CONSULTATION WITH OTHER PROJECT STAKEHOLDERS, AND AUDITS (BOTH INTERNAL AND FROM THIRD PARTIES) HELPED TO IMPROVE THE CONFIDENCE OF STRICT COMPLIANCE.

from these Directives, an Environmental and Social Action Plan (ESAP) was generated and approved before construction began. This ESAP combines all conditions and restrictions from the above-mentioned Directives as well as from other applicable norms, standards, laws, etc., into one document, and is subject to continuous and ongoing environmental monitoring.

So as to assure that the motorway does not represent an insurmountable obstacle for the local fauna, a total of 14 special animal bridges and more than 140 underground passageways were planned and implemented for small and medium-sized animals. Gantries and protective high screen walls with a length of 2.5 km have been erected across the motorway so as to prevent a rare and endangered bat from crossing the motorway in dangerous fashion. These special requirements have affected planning; and the progress and sequence of construction was also adapted to nature's requirements,

flora and fauna, and bird and animal migration seasons.

Between January and July (for example), the protected zone around bird breeding areas was extended from 200 to 500 meters. During the migration of amphibians and reptiles between March/April and September/October of each year, 50 cm high protective fences were erected along more than 18 km to prevent the animals from crossing the construction road site. In 2010 alone, over 10,000 amphibian animals were safely guided/transported from the area of construction to their destination.

Constant monitoring, in close consultation with other project stakeholders, and audits (both internal and from third parties) helped to improve the confidence of strict compliance. The respect for environmental protection fits well within all shareholder priorities to help to contribute to sustainable development.

CONCLUSION

The challenging Polish A2 Toll Motorway development and implementation program continues to witness a dynamic and interesting situation. Both the Segment I and Segment II project stakeholders (consisting of Polish and international industry participants) remain fully committed to their long-standing view of realizing construction success, focusing on key aspects relating to quality, timeliness, sustainability, and environmental/ecological protection, and in also applying the most appropriate construction

methodologies. Once in operation, the Segment II stretch (combined with the already-existing Segment I project and the Poznań By-pass) of over 250 km of the A2 Toll Motorway will undoubtedly significantly enhance road user safety, speed up freight transit travel, and contribute to the safe, sustainable, environmental, and economic development of the region; and it will vastly improve the Trans-European Network's transportation infrastructure in this dynamic region of Central Europe.

— **NIGEL LEWIS** is the Director of the Louis Berger Group. He may be reached at nlewis@louisberger.com. **JERZY SMAGOWSKI** is the Vice President of the Board at Autostrada Wielkopolska SA. He may be reached at j.smagowski@mail.autostrada-a2.pl. **DR. JAMES WEISS** is the Managing Director of Infrastructure Development at Strabag AG. He may be reached at james.weiss@strabag.com.

1 The views in this article are the authors' alone and are not necessarily shared by